

Calpwr Santa Barbara LLC

Petition for Variance

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Calpwr SB LLC
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City of Santa Barbara – El Estero Wastewater Treatment Plant (WWTP)



El Estero Water Resource Center
El Estero Water Resource Center

Gateway Chapel of Santa Barbara

CalPwr

Facility Overview

Fuel treatment system



Engine and switchgear



Affected equipment

- 896.00 bhp Gauscor cogeneration engine
- The El Estero Wastewater Treatment Plant (WWTP) receives wastewater from the City of Santa Barbara where it is processed for disposal.
- Biogas is generated as part of the WWTP treatment process.
- Utilizes biogas (digester gas) as the primary fuel source to convert biogas to electricity.
- Fuel may be supplemented up to 25% natural gas. This is limited by the California Energy Commission (CEC) and District permit.



Background



- Source testing was conducted on January 27, 2022; passing results were not achieved for emission rates for NO_x and CO (lb/MMBtu)
- Passing results were achieved for all other parameters
- Pre-pandemic parameters are required to achieve passing emission rates for NO_x and CO (lb/MMBtu).
 - 425 kW
 - 140 scfm
 - at least 61% methane content
 - higher heating value of 615 BTU/ft³
- Until the biogas production increases, the engine cannot operate within this range due to insufficient gas production
- Retesting would result in similar results

Six Findings

1. APPLICANT IN VIOLATION of District Rule or HSC 41701 (Visible Emissions)
2. NONCOMPLIANCE due to CONDITIONS BEYOND APPLICANTS REASONABLE CONTROL and requiring compliance would result in UNREASONABLE TAKING OF PROPERTY or CLOSING of BUSINESS?
3. SUCH TAKING is WITHOUT CORRESPONDING BENEFIT in reducing pollution.
4. APPLICANT has considered CURTAILING OPERATIONS.
5. APPLICANT will REDUCE EMISSIONS to maximum extent feasible.
6. APPLICANT will MONITOR and REPORT emissions.

Two Implicit Findings



1. OPERATION under variance NOT a NUISANCE.
2. OTHER REQUIREMENTS to guarantee EXPEDITIOUS COMPLIANCE with emissions standards or increments of progress.

Finding 1: APPLICANT IN VIOLATION of District Rule or HSC 41701 (Visible Emissions)

- In violation of District Rule 206, and Conditions 1.a, 6, 7.a and 7.c of Permit to Operate 13862-R2.

- Condition 1.a limits the emission rates in Table 2.

	Permit Limit	Reported
NOx	0.183 lb/MMBtu	0.221 lb/MMBtu
CO	0.549 lb/MMBtu	0.639 lb/MMBtu

- Condition 6 requires Best Available Control Technology (BACT). While the technology is still installed, the BACT emission rates are unable to be achieved due to low biogas flow and poor gas quality.
 - Condition 7.a requires annual source testing. Repeat source testing will result in similar results.
 - Condition 7.c requires compliant source test results. Source testing indicated an exceedance in the NOx and CO emission rates (lb/MMBtu)

Finding 2: NONCOMPLIANCE due to CONDITIONS BEYOND APPLICANTS REASONABLE CONTROL and requiring compliance would result in UNREASONABLE TAKING OF PROPERTY or CLOSING of BUSINESS?

- Decreased biogas flow to the cogeneration engine is attributed to the COVID-19 pandemic and the Governor's Emergency Order to stay home.
- Decline in tourism and the temporary closure of the University of California Santa Barbara.
- This decline caused a significant decrease in the volume of biogas generated.
- Immediate compliance would put CalPwr in breach of contract with the City of Santa Barbara El Estero Wastewater Treatment Plant. Without CalPwr, the WWTP would have to obtain grid power at an increased rate.
- Shutting down the cogeneration engine would result in a loss of \$30,000/month and closure of the business.
- This is outside the control of CalPwr and immediate compliance would require closure of a lawful business.

Finding 3: SUCH TAKING is WITHOUT CORRESPONDING BENEFIT in reducing pollution.

- The closing or taking would be without a corresponding benefit in reducing air contaminants.
- Shutting down the cogeneration engine would require the digester gas to be combusted at the WWTP flare.
- Sending the biogas to the WWTP flare may cause the WWTP to exceed their permit limits.

Finding 4: APPLICANT has considered CURTAILING OPERATIONS.

- Curtailment would result in the closing of a CalPwr as a business at the Santa Barbara location.
- CalPwr is under contract with the City of Santa Barbara El Estero WWTP to provide electricity to the plant. Curtailment would cause CalPwr to be in breach of contract.

Finding 5: APPLICANT will REDUCE EMISSIONS to maximum extent feasible.

- CalPwr will reduce excess emissions to the maximum extent feasible by running the cogeneration engine as efficiently as possible by supplementing the biogas with up to 25% natural gas (maximum natural gas percentage required to comply with Certified Renewable Energy Certification given by the CEC (California Energy Commission) for this project.

Finding 6: APPLICANT will MONITOR and REPORT emissions.

- CalPwr will monitor and record the following:
 - operating hours on each day the engine is operated and the cumulative total;
 - fuel usage (biogas and natural gas, separately);
 - methane content of the biogas; and
 - power generation in kW.

Two Implicit Findings

1. OPERATION under variance NOT a NUISANCE.
 - Continued operation is not expected to create a nuisance.

2. OTHER REQUIREMENTS to guarantee EXPEDITIOUS COMPLIANCE with emissions standards or increments of progress.
 - Frequent gas monitoring (qualitative and quantitatively) will be conducted to ensure source testing can be done as soon as the biogas meets the cogeneration engine requirements.

Questions?