



MAR 16 2011

Rachel Garza
Wellhead Power Panoche, LLC
650 Bercut Drive, Suite C
Sacramento, CA 95814

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: C-1110069

Dear Ms. Garza:

Enclosed for your review and comment is the District's analysis of Wellhead Power Panoche, LLC's application for an Authority to Construct for a 23.0 MW natural-gas turbine that will serve as a temporary replacement emissions unit (TREU) for one of the two 25.0 MW Pratt & Whitney Model FT4C-1 natural gas-fired gas turbines listed on Permit to Operate C-3844-1-7, at 43469 W. Panoche Road in Firebaugh, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Ms. Gurpreet Brar of Permit Services at (559) 230-5926.

Sincerely,

David Warner
Director of Permit Services

DW:gb

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



MAR 16 2011

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: C-1110069

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Wellhead Power Panoche, LLC's application for an Authority to Construct for a 23.0 MW natural-gas turbine that will serve as a temporary replacement emissions unit (TREU) for one of the two 25.0 MW Pratt & Whitney Model FT4C-1 natural gas-fired gas turbines listed on Permit to Operate C-3844-1-7, at 43469 W. Panoche Road in Firebaugh, CA.

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Fresno Bee
Fresno Bee

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Wellhead Power Panoche, LLC for a 23.0 MW natural-gas turbine that will serve as a temporary replacement emissions unit (TREU) for one of the two 25.0 MW Pratt & Whitney Model FT4C-1 natural gas-fired gas turbines listed on Permit to Operate C-3844-1-7, at 43469 W. Panoche Road in Firebaugh, CA.

The analysis of the regulatory basis for this proposed action, Project #C-1110069, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

(Gas Turbine TREU)

Facility Name: Wellhead Power Panoche, LLC	Date: March 2, 2011
Mailing Address: 650 Bercut Drive, Suite C Sacramento, CA 95814	Engineer: Gurpreet Brar Lead Engineer: Martin Keast
Contact Person: Rachel Garza	
Telephone: (559) 693-2494	
Fax: (559) 693-4665	
Application #: C-3844-7-0	
Project #: C-1110069	
Deemed Complete: January 26, 2011	

I. Proposal

The facility is applying for an Authority to Construct (ATC) permit for the installation of a 23.0 MW Pratt & Whitney Model FT4A-9 natural gas-fired gas turbine. The proposed turbine will serve as a temporary replacement emissions unit (TREU) for one of the two 25.0 MW Pratt & Whitney Model FT4C-1 natural gas-fired gas turbines listed on Permit to Operate C-3844-1-7 (see Appendix A) and will be used when one of these two gas turbines either need to be serviced or repaired. The TREU will be the same make as the existing turbine and will have identical emissions. There will be no net emission increase as a result of this project.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (12/18/08)
 Rule 2520 Federally Mandated Operating Permits (6/21/01)
 Rule 4001 New Source Performance Standards (4/14/99)
 Rule 4101 Visible Emissions (2/17/05)
 Rule 4102 Nuisance (12/17/92)
 Rule 4201 Particulate Matter Concentration (12/17/92)
 Rule 4301 Fuel Burning Equipment (12/17/92)
 Rule 4703 Stationary Gas Turbine (9/20/07)
 Rule 4801 Sulfur Compounds (12/17/92)
 CH&SC 41700 Health Risk Assessment
 CH&SC 42301.6 School Notice
 Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
 California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at 43469 W. Panoche Road in Firebaugh, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Wellhead Power Panoche, LLC operates a 49.9 MW power plant located near Mendota, CA adjacent to an existing Pacific Gas and Electric substation. The two simple-cycle gas turbines fire only natural gas and are used to provide power to California's electricity grid during periods of high electricity demand.

V. Equipment Listing

C-3844-7-0: 23.0 MW PRATT & WHITNEY MODEL FT4A-9 NATURAL GAS-FIRED GAS TURBINE ENGINE (GTE) WITH DRY LOW NOX (DLN) OR WATER INJECTION TECHNOLOGY AND A SHARED SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH OXIDATION CATALYSTS AND INLET AIR FOGGING SHARED WITH PERMIT C-3844-1 USED AS A TEMPORARY REPLACEMENT UNIT (TREU) FOR ONE OF THE TURBINES LISTED ON PERMIT C-3844-1

VI. Emission Control Technology Evaluation

Emissions from natural gas-fired turbines include NO_x, carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM₁₀), sulfur oxides (SO_x), and volatile organic compounds (VOC).

The level of NO_x formation in a gas turbine is unique (by design factors) to each gas turbine model and operating mode. The primary factors that determine the amount of NO_x generated are the combustor design, the types of fuel being burned, ambient conditions, operating cycles, and the power output of the turbine.

The design of the combustor is the most important factor influencing the formation of NO_x. Design parameters controlling air/fuel ratio and the introduction of cooling air into the combustor strongly influence thermal NO_x formation. Thermal NO_x formation is primarily a function of flame temperature and residence time. The extent of fuel/air mixing prior to combustion also affects NO_x formation. Simultaneous mixing and combustion results in localized fuel-rich zones that yield high flame temperatures in which substantial thermal NO_x production takes place.

The emission units are equipped with Dry Low NO_x (DLN) combustors and a Selective Catalytic Reduction (SCR) system to control NO_x emissions.

Premixing air and fuel at a lean ratio approaching the lean flammability limit (approximately 50% excess air) significantly reduces peak flame temperature, resulting in minimum NO_x formation during combustion. This is known as dry low NO_x (DLN) combustion. Injecting water or steam into a conventional combustor provides a heat sink that effectively reduces peak flame temperature, thereby reducing thermal NO_x formation.

Selective Catalytic Reduction systems selectively reduce NO_x emissions by injecting ammonia (NH₃) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH₃, and O₂ react on the surface of the catalyst to form molecular nitrogen (N₂) and H₂O. SCR is capable of over 90 percent NO_x reduction. Titanium oxide is the SCR catalyst material most commonly used, though vanadium pentoxide, noble metals, or zeolites are also used. The ideal operating temperature for a conventional SCR catalyst is 600 to 750 °F. Exhaust gas temperatures greater than the upper limit (750 °F) will cause NO_x and NH₃ to pass through the catalyst unreacted.

PM₁₀ emissions are controlled through the use of PUC-quality natural gas, and an air intake filter house. VOC emissions, CO and SO_x are controlled through the use of an oxidation catalyst and PUC-quality natural gas.

VII. General Calculations

A. Assumptions

- F-factor for natural gas, corrected to 60 °F, is 8,578 dscf/MMBtu
- Daily emissions are based on 24 hours per day, (Applicant's Data)
- Annual emissions are based on a total annual heat input of 2,480,000 MMBtu/year for both turbines combined, (PTO C-3844-1-7)
- Daily NO_x emissions are limited to 148.8 lb-NO_x/day, (PTO C-3844-1-7)
- Annual NO_x emissions are limited to 22,816 lb-NO_x/year, (PTO C-3844-1-7)
- Gas Turbine Engines are exclusively fired on PUC regulated natural gas,
- EPA F-Factor for Natural Gas: 8,710 dscf/MMBtu at 68°F, (40 CFR 60)
- Corrected EPA F-Factor for Natural Gas: 8,578 dscf/MMBtu at 60°F
- Natural Gas Heating Value: 1,000 Btu/scf, (AP 42 Section 1.4)
- The maximum heat input rating for each turbine is 337 MMBtu/hr (Applicant's Data)
- All Particulate Matter (PM) is PM₁₀ (CARB PM Inventory Weight Fractions, 02/13/86)
- SO_x emissions are based on natural gas with a sulfur content of 1.0 gr S/100 scf
- SO_x Emission Factors for natural gas combustion are from District Policy APR 1720
- Grain conversion: 1 pound = 7,000 grains, (AP-42-Appendix A-18)

B. Emission Factors

Emissions Factors for the Gas Turbine Engine is listed as follows:

Pollutant	Emission Factors		Source
NO _x	2.5 ppmv @ 15% O ₂	0.0092 lb-NO _x /MMBtu	PTO C-3844-1-7
SO _x	1.0 gr/100 scf	0.00285 lb-SO _x /MMBtu	PTO C-3844-1-7
PM ₁₀	---	0.0066 lb-PM ₁₀ /MMBtu	PTO C-3844-1-7
CO	16.0 ppmv @ 15% O ₂	0.0359 lb-CO/MMBtu	PTO C-3844-1-7
VOC	2.0 ppmv @ 15% O ₂ (as CH ₄)	0.0026 lb-VOC/MMBtu	PTO C-3844-1-7
NH ₃	10 ppm @ 15% O ₂	0.0134 lb-NH ₃ /MMBtu	PTO C-3844-1-7

During startup and shutdown periods Post-Project hourly NO_x emission limit is 25 lb-NO_x/hr.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since this is a new emissions unit, PE1 = 0 for all criteria pollutants.

2. Post Project Potential to Emit (PE2)

The daily Post-Project Potential to Emit (PE2) for the proposed gas turbine is calculated as follows:

$$PE2 = EF2 * 337 \text{ MMBtu/hr} * 24 \text{ hr/day}$$

$$PE2_{NOx} = (0.0092 \text{ lb/MMBtu}) * (337 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\ = 74.4 \text{ lb NO}_x/\text{day}$$

$$PE2_{SOx} = (0.00285 \text{ lb/MMBtu}) * (337 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\ = 23.1 \text{ lb SO}_x/\text{day}$$

$$PE2_{PM10} = (0.0066 \text{ lb/MMBtu}) * (337 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\ = 53.4 \text{ lb PM}_{10}/\text{day}$$

$$PE2_{CO} = (0.0359 \text{ lb/MMBtu}) * (337 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\ = 290.4 \text{ lb CO/day}$$

$$PE2_{VOC} = (0.0026 \text{ lb/MMBtu}) * (337 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\ = 21.0 \text{ lb VOC/day}$$

$$PE2_{NH3} = (0.0134 \text{ lb/MMBtu}) * (337 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\ = 108.4 \text{ lb NH}_3/\text{day}$$

As the proposed unit will be used as a substitute for one of the existing gas turbines under permit unit C-3844-1-7, therefore the maximum annual heat input for the two natural gas-fired turbine engines combined remain as 2,480,000 MMBtu/year, the Post-Project Potential to Emit (PE2) is calculated as follows:

$$PE2_{NOx} = (0.0092 \text{ lb/MMBtu}) * (2,480,000 \text{ MMBtu/year}) \\ = 22,816 \text{ lb NO}_x/\text{year}$$

$$PE2_{SOx} = (0.00285 \text{ lb/MMBtu}) * (2,480,000 \text{ MMBtu/year}) \\ = 7,068 \text{ lb SO}_x/\text{year}$$

$$PE2_{PM10} = (0.0066 \text{ lb/MMBtu}) * (2,480,000 \text{ MMBtu/year}) \\ = 16,368 \text{ lb PM}_{10}/\text{year}$$

$$\begin{aligned} PE_{2CO} &= (0.0359 \text{ lb/MMBtu}) * (2,480,000 \text{ MMBtu/year}) \\ &= 89,032 \text{ lb CO/year} \end{aligned}$$

$$\begin{aligned} PE_{2VOC} &= (0.0026 \text{ lb/MMBtu}) * (2,480,000 \text{ MMBtu/year}) \\ &= 6,448 \text{ lb VOC/year} \end{aligned}$$

$$\begin{aligned} PE_{2NH_3} &= (0.0134 \text{ lb/MMBtu}) * (2,480,000 \text{ MMBtu/year}) \\ &= 33,232 \text{ lb NH}_3\text{/year} \end{aligned}$$

Post-Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	74.4	22,816
SO _x	23.1	7,068
PM ₁₀	53.4	16,368
CO	290.4	89,032
VOC	21.0	6,448
NH ₃	108.4	33,232

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

The SSPE1 is obtained from project #C-1093714, as provided in the following table:

Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
C-3844-1-7*	22,816	7,068	16,368	89,032	6,448
C-3844-5-0*					
C-3844-6-0*					
C-3844-3-0	335	8	5	147	54
Pre Project SSPE (SSPE1)	23,151	7,076	16,373	89,179	6,502

* The facility has proposed an SLC that includes units C-3844-1, '5, and '6

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Post Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
C-3844-1-7*	22,816	7,068	16,368	89,032	6,448
C-3844-5-0*					
C-3844-6-0*					
ATC C-3844-7-0*					
C-3844-3-0	335	8	5	147	54
Post Project SSPE (SSPE2)	23,151	7,076	16,373	89,179	6,502

* The facility has proposed an SLC that includes units C-3844-1, '5, '6 and '7

5. Major Source Determination

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values.

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	23,151	7,076	16,373	89,179	6,502
Post Project SSPE (SSPE2)	23,151	7,076	16,373	89,179	6,502
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	No

As seen in the table above, the facility is an existing Major Source for NO_x emissions and will remain a Major Source for NO_x. No change in other pollutants are proposed or expected as a result of this project.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

Since this is a new emissions unit, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as *"any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."*

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_x emissions; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions unit within this project do not have a total potential to emit which is greater than Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	22,816	50,000	No
SO _x	7,068	80,000	No
PM ₁₀	16,368	30,000	No
VOC	6,448	50,000	No

8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" defined in 40 CFR 51.165 and part D of Title I of the CAA.

The applicant is proposing the installation of a TREU turbine to be operated when the existing turbine is non-operational due to repairs. Pursuant to 40 CFR 51.165 (a)(1)(v)(C)(1), routine maintenance and repair is not considered a physical change in the method of operation and therefore is not considered a major modification. The facility has stated that the installation of the TREU turbine is to allow for normal operation of their facility while repairs are made to the turbine. Since routine repairs are being made to the existing turbine and the installation and operation of the TREU turbine is part of the routine repair process, the installation of the TREU turbine is not considered a major modification.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen.

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

QNEC = PE2 - PE1, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$\begin{aligned}
 PE2_{\text{quarterly}} &= PE2_{\text{annual}} \div 4 \text{ quarters/year} \\
 &= 22,816 \text{ lb-NO}_x\text{/year} \div 4 \text{ qtr/year} \\
 &= 5,704 \text{ lb NO}_x\text{/qtr}
 \end{aligned}$$

$$\begin{aligned}
 PE1_{\text{quarterly}} &= PE1_{\text{annual}} \div 4 \text{ quarters/year} \\
 &= 0 \text{ lb/year} \div 4 \text{ qtr/year} \\
 &= 0 \text{ lb NO}_x\text{/qtr}
 \end{aligned}$$

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	5,704	0	5,704
SO _x	1,767	0	1,767
PM ₁₀	4,092	0	4,092
CO	22,258	0	22,258
VOC	1,612	0	1,612

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

Section 3.39 of District Rule 2201 defines a "Temporary Replacement Emissions Unit" (TREU) as:

Temporary Replacement Emissions Unit (TREU): an emissions unit which is at a Stationary Source for less than 180 days in any twelve month period and replaces an existing emissions unit which is shutdown for maintenance or repair.

- The Potential to Emit from a TREU must not exceed the Potential to Emit from the existing emissions unit.
- If a TREU is used to replace a TREU, the combined time at the Stationary Source for the two TREU shall not exceed a total of 180 days in any twelve-month period.
- An emissions unit not removed from the Stationary Source within 180 days is not a TREU.

For the proposed units to meet Rule 2201's definition of TREU, they must be removed from the source within 180 days and must not exceed the potential to emit from the unit they will replace. The table below compares these emissions:

Daily Emission Comparison (lb/day)				
	TREU	Gas Turbine		TREU Compliant?
	C-3844-7-0	C-3844-1-7	C-3844-1-7	
NO _x	74.4	74.4	74.4	Yes
SO _x	23.1	23.1	23.1	Yes
PM ₁₀	53.4	53.4	53.4	Yes
CO	290.4	290.4	290.4	Yes
VOC	21.0	21.0	21.0	Yes

The follow conditions will be placed on the permit to show compliance:

- This unit shall only operate when one turbine listed in permit unit C-3844-1 is not operating. [District Rule 2201]
- This unit shall be removed from the site before 180 cumulative days on site in any twelve month period. [District Rule 2201]
- No more than two turbines shall be operated at a time in the facility. [District Rule 2201]

A. Best Available Control Technology (BACT)

1. BACT Applicability

Section 4.2.5 of District Rule 2201 exempts TREUs from Best Available Control Technology (BACT). This unit qualifies as a TREU under Rule 2201; therefore, this unit does not require BACT.

B. Offsets

1. Offset Applicability

Section 4.6.5 of District Rule 2201 exempts TREUs from offset requirements. The proposed unit qualifies as a TREU; therefore, offsets or offset calculations are not required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. Major Modification

As demonstrated in VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not required.

c. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	74.4	100 lb/day	No
SO _x	23.1	100 lb/day	No
PM ₁₀	53.4	100 lb/day	No
CO	290.4	100 lb/day	Yes
VOC	21.0	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required.

d. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	23,151	23,151	20,000 lb/year	No
SO _x	7,076	7,076	54,750 lb/year	No
PM ₁₀	16,373	16,373	29,200 lb/year	No
CO	89,179	89,179	200,000 lb/year	No
VOC	6,502	6,502	20,000 lb/year	No

As detailed above, there were no thresholds exceeded with this project; therefore public noticing is not required for offset purposes.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	23,151	23,151	0	20,000 lb/year	No
SO _x	7,076	7,076	0	20,000 lb/year	No
PM ₁₀	16,373	16,373	0	20,000 lb/year	No
CO	89,179	89,179	0	20,000 lb/year	No
VOC	6,502	6,502	0	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for CO emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

- Gas turbine engines shall be fired exclusively on natural gas with a sulfur content of no greater than 1.0 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
- Except during periods of startup and shutdown, emission rates from the natural gas-fired turbine engine shall not exceed any of the following limits: 6.20 lb-NO_x/hour (as NO₂) equivalent to 2.5 ppmvd @ 15% O₂, 1.92 lb-SO_x/hour (as SO₂), 4.45 lb-PM₁₀/hour, 24.20 lb-CO/hour equivalent to 16.0 ppmvd @ 15% O₂, 1.75 lb-VOC/hour (as methane) equivalent to 2.0 ppmv @ 15% O₂, or 10 ppmv ammonia @ 15% O₂. All emission limits are based on one hour rolling averages. [District Rules 2201, 4001, and 4703, 5.1.2 & 5.2]
- Daily combined NO_x emissions from both natural gas-fired turbine engines shall not exceed 148.8 lb-NO_x/day, measured on a 24 hour rolling period. [District Rule 2201]
- Annual combined NO_x emissions from both natural gas-fired turbine engines shall not exceed 22,816 lb-NO_x/year, measured on a calendar year period. [District Rule 2201]
- Maximum annual heat input for both natural gas-fired turbine engines combined shall not exceed 2,480,000 MMBtu/year, measured on a calendar year period. [District Rule 2201]

Start up or shut down time of gas turbine engines are designated as a transitional operation period. Therefore, specific conditions regarding Daily Emissions Limits (DELs) during a transitional operation period will be listed on the ATC as follows:

- During periods of startup or shutdown, combined emissions from both natural gas-fired turbine engines shall not exceed any of the following limits: 25.0 lb-NO_x/hour (as NO₂), 1.92 lb-SO_x/hour (as SO₂), 4.45 lb-PM₁₀/hour, 24.20 lb-CO/hour, or 1.75 lb-VOC/hour (as methane), based on one hour averages. [District Rules 2201 and 4001]
- Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.26, 3.29 and 5.3]

The following condition will be placed on the ATC to assure compliance with the SLC.

- Combine annual emissions from units C-3844-1 and C-3844-5 shall not exceed any of the following limits: 22,816 lb-NO_x/year, 7,068 lb-SO_x/year, 16,368 lb-PM₁₀/year, 89,032 lb-CO/year, and 6,448 lb-VOC/year. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

Source testing to measure PM₁₀, NO_x (as NO₂), VOC, CO, ammonia and fuel gas sulfur content requirements of ATC shall be conducted within 60 days of initial operation and at least once every twelve months thereafter.

This will be satisfied by including the following conditions:

- Compliance testing to demonstrate compliance with the PM₁₀, NO_x (as NO₂), VOC, CO, ammonia emission limits, and fuel gas sulfur content requirements of this permit shall be conducted within 60 days of startup and at least once every twelve months. [District Rules 2201, 4001, and 4703, 6.3.1]
- Compliance testing to measure NO_x (as NO₂), CO, and ammonia emissions shall be conducted within 60 days of switching the turbine combustion emission control technology from Dry Low NO_x (DLN) to water injection technology, or vice versa. The permittee shall be required to conduct compliance testing for each combustor emission control technology only once every twelve months. [District Rules 2201 and 4001]

- Compliance testing shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- The following test methods shall be used: NO_x - EPA Method 7E or 20; CO - EPA Method 10 or 10B; VOC - EPA Method 18 or 25; PM₁₀ - EPA Method 5 (front half and back half); ammonia - BAAQMD ST-1B; O₂ - EPA Method 3, 3A, or 20; and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335(a), and 40 CFR 60.335(b)(10)]

2. Monitoring

Pursuant to the current operating permit, the power generation operation shall be equipped with a continuous monitoring system to measure and record hours of operation and fuel consumption, NO_x (before and after SCR system), CO, and O₂.

The CEM shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections.

In addition, the results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA.

Further, a monitoring condition will be added to require the permittee CEM system to be compatible with District's CEM data polling software system and to make CEM data available to the District's automated polling system on a daily basis.

Permit Conditions will be listed as follows:

- Gas turbine engines shall be equipped with a continuous monitoring system to measure and record hours of operation, and fuel consumption. [District Rules 2201, 4001 and 4703, 6.2.1]
- Gas turbine engines shall be equipped with a single continuous emissions monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. The CEM shall meet the requirements of 40 CFR part 60 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rules 2201, 4001, and 4703, 6.2.1]

- The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]
- Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]
- The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]

3. Recordkeeping

Pursuant to the current operating permit, the permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor, hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, and calculated NO_x mass emission rates (lb/hr).

Following conditions will be listed on permit as follows:

- The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, maintenance of any continuous emission monitor, continuous emission monitor measurements and calculated NO_x mass emission rates (lb/hr). [District Rules 2201 and 4703, 6.2]
- The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, duration of start-up or shutdown, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6 and 6.2.8]
- All records shall be maintained, retained on-site for a minimum of five years and shall be made available for District inspection upon request. [District Rule 1070]

4. Reporting

Pursuant to the current operating permit, the following condition will be listed on permit as follows:

- The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]

Rule 2520 Federally Mandated Operating Permits

Pursuant to their current operating permit, this facility is an existing major source; however, the facility has not received their Title V permit. An application to comply with Rule 2520 - *Federally Mandated Operating Permits* has already been submitted to the District; therefore, no action is required at this time.

Rule 4001 New Source Performance Standards

40 CFR Part 60 Subpart GG applies to all stationary gas turbines with a heat input greater than 10.7 gigajoules per hour (10.2 MMBtu/hr), that commence construction, modification or reconstruction after 10/03/77. Therefore, this subpart applies to the turbine proposed in this project.

§60.332 Standard for NO_x:

§60.332(a) states that the NO_x emissions from the turbine with a minimum heat input rating of 250 MMBtu/hr are limited by the following equation:

$$\text{NO}_x (\% \text{ by vol at } 15\% \text{ O}_2) \text{ 1 hour average} = 0.0075x (14.4 / Y) + F$$

Where: Y = manufacturer's rated heat load (kJ/W-hr)
F = amount of fuel bound nitrogen

Therefore:

$$Y = 13,500 \text{ Btu/kW-hr} \times (\text{kW}/1,000 \text{ W}) \times (1,054.2 \text{ J/Btu}) \times (\text{kJ}/1,000\text{J})$$

$$Y = 14.2 \text{ kJ/W-hr}$$

$$F = 0 \text{ (for natural gas)}$$

Thus:

NO_x (% vol at 15% O_2) 1 hour average = $0.0075 \times (14.4 / 14.2) + 0$

NO_x (% vol at 15% O_2) 1 hour average = $0.0075\% = 75 \text{ ppmv @ } 15\% \text{ O}_2$

The applicant is proposing a NO_x limit of 2.5 ppmv @ 15% O_2 , therefore compliance with NSPS NO_x standard is expected.

§60.333 Standard for SO_x :

§60.333(a) contains a SO_x standard, which limits fuel sulfur content to less than or equal to 0.8% by weight. Wellhead Power Panoche is proposing the use of PUC-quality natural gas fuel, which has regulated sulfur content of less than 0.000033% (see Rule 4801 compliance section). Thus, compliance with the SO_x standard is expected.

§60.334 Monitoring of Operations

§60.334(a) requires the owner/operator of any stationary gas turbine using water injection to control NO_x to install and operate a continuous monitoring system to monitor and record fuel consumption and ratio to water to fuel fired. Since the applicant is proposing an option that would allow the turbines to be equipped with water injection, a continuous monitoring system is required.

The following conditions will be placed on the proposed ATC:

- Gas turbine engines shall be equipped with a continuous monitoring system to measure and record hours of operation and fuel consumption. [40 CFR 60.334(a) and District Rules 2201 and 4703, 6.2.1]
- Gas turbine engines shall be equipped with a single continuous emissions monitor (CEM) for NO_x (before and after SCR system), CO, and O_2 . The CEM shall meet the requirements of 40 CFR part 60 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [40 CFR 60.334(a) and District Rules 2201 and 4703, 6.2.1]

§60.334(h)(3)(i) and (ii) requires the owner or operator to keep sulfur content records using valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum sulfur content of the fuel is 20 grains/100 scf or less or perform a *representative fuel sampling* to show the sulfur content of gaseous fuel does not exceed 20 grains/100 scf. This unit will be fired exclusively on PUC regulated natural gas with total sulfur content of less than or equal to 1.0 gr/100 scf, therefore compliance with sulfur content is expected. The following condition will be placed on the proposed ATC:

- The sulfur content of each fuel source shall be documented in a valid purchase contract, a supplier certification, a tariff sheet, or a transportation contract. [40 CFR 60.334(h)(3)]

§60.334(j)(5) requires the owner or operator to postmark the reports required under §60.7(c) by the 30th day following the end of each 6-month period. The permittee is required to submit quarterly reports. Thus, compliance is expected with this section.

- The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [40 CFR 60.334(j), (j)(5) and District Rule 1080]

§60.335 Test Methods and Procedure

§60.335(a) states that the owner or operator shall conduct the performance tests required in §60.8 using EPA Method 20, ASTM D6522-00 or EPA Method 7E and either EPA Method 3 or 3A to determine NO_x and diluent concentration. Sampling traverse points are to be selected following Method 20 or Method 1.

§60.335(b)(10)(ii) states that an owner or operator is required to determine the sulfur content of the fuel combusted in the turbine then a minimum of three fuel samples shall be collected during the performance test. The total sulfur content of the natural gas being fired in the turbine shall be determined using ASTM D1072-80, 90 (Reapproved 1994); D3246-81, 92, 96; D4468-85 (Reapproved 2000); or D6667-0.

The following condition will be placed on the proposed ATC:

- The following test methods shall be used: NO_x - EPA Method 7E or 20; CO - EPA Method 10 or 10B; VOC - EPA Method 18 or 25; PM₁₀ - EPA Method 5 (front half and back half); ammonia - BAAQMD ST-1B; O₂ - EPA Method 3, 3A, or 20; and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335(a), and 40 CFR 60.335(b)(10)]

Compliance is expected with this Rule.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the IC engine and turbines are fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will be added to the permit to assure compliance with this rule.

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected. The following condition will be added to the permit to assure compliance with this rule.

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

As demonstrated above, there are no increases in emissions associated with this project, therefore a health risk assessment is not necessary and no further risk analysis is required.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

PM ₁₀ Emission Factor:	0.0066 lb-PM ₁₀ /MMBtu
Percentage of PM as PM ₁₀ in Exhaust:	100%
Exhaust Oxygen (O ₂) Concentration:	3%

$$\text{Excess Air Correction to F Factor} = \frac{20.9}{(20.9 - 3)} = 1.17$$

Therefore for each natural gas-fired turbine engine, the Particulate Matter Concentration is calculated as follows:

$$\left(\frac{0.0066 \text{ lb-PM}_{10}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb}} \right) / \left(\frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right) = 0.0046 \frac{\text{grain}}{\text{dscf}}$$

$$0.0046 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, compliance with District Rule 4201 requirements is expected.

The following condition will be added to the permit to assure compliance with this rule.

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO₂, NO₂, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter.

District Rule 4301 Limits			
Pollutant	NO₂	Total PM	SO₂
ATC #C-3844-7-0 (lb/hr)	3.1	2.2	1.0
Rule Limit (lb/hr)	140	10	200

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, compliance is expected. The DEL condition on the permits will assure compliance with this rule.

District Rule 4703 Stationary Gas Turbines

The purpose of this rule is to limit oxides of nitrogen (NO_x) emissions from stationary gas turbine systems. Pursuant to Section 2.0, the provisions of this rule apply to all stationary gas turbine systems, which are subject to District permitting requirements, and with ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3,000,000 Btu per hour, except as provided in Section 4.0.

Section 5.1 requires that NO_x emissions concentrations measured for compliance with Section 5.0 shall be averaged, using consecutive 15-minute sampling periods, over a three hour period in accordance with either the applicable test method in Section 6.4, or, if continuous emission monitors are used, all applicable requirements of 40 CFR Part 60, as detailed in Section 6.2. Any variations from these measurement requirements are subject to APCO and EPA approval prior to implementation.

Section 5.1.1 requires that the owner or operator of any stationary gas turbine system shall not operate such unit under load conditions, except as allowed by Section 5.3, which results in the measured emissions concentration exceeding the applicable emission limits below, according to the Tier 1 Compliance Schedules listed in Section 7.0.

Rule 4703 Tier 1 Gas Turbine NO_x Emission Limits		
Turbine Rating (MW)	Operation (hrs/yr)	NO _x Emission Limit (ppmv @ 15% O ₂)
10.0 MW and greater, with SCR	≥877	9 x EFF/25

Where EFF (efficiency) is the higher of EFF₁ or EFF₂ below. An EFF that is less than 25 shall be assigned a value of 25.

$$EFF_1 = \frac{3,412(\text{Btu} / \text{kW} - \text{hr})}{\text{ActualHeatRate @ HHVB}(\text{Btu} / \text{kW} - \text{hr})} \times 100\%$$

EFF₁ is the demonstrated percent efficiency of the gas turbine only, as calculated without consideration of any downstream energy recovery from the actual heat rate (Btu/KW-hr); corrected to HHV and standard conditions, as measured at peak load for that facility.

$$EFF_2 = EFF_{mfr} \frac{LHV}{HHV}$$

EFF₂ is EFF_{mfr} after correction from LHV to HHV at peak load for that facility. EFF_{mfr} is the manufacturer's continuous rated percent efficiency of the gas turbine with air pollution control equipment at LHV.

The Actual Heat Rate @ HHV for the Pratt & Whitney turbine is 13,500 Btu/kW-hr as reported by the manufacturer:

$$EFF_1 = (3,412 / 13,500) \times 100$$

$$EFF_1 = 25.2\%$$

Therefore, when gas fired:

$$NO_x = 9 \times 25.2 / 25$$

$$NO_x = 9.1 \text{ ppmv @ 15\% O}_2$$

EFF₂ calculations are not necessary since Rule 4703 emission limits will be no lower than 5 ppmv NO_x and the turbine will be limited to a maximum of 2.5 ppmv NO_x @ 15% O₂; therefore compliance is expected.

Section 5.1.2, Table 5-2, Tier 2 NO_x Compliance Limits, requires the owner or operator to achieve less than or equal to 5 ppmvd NO_x @ 15% O₂ to meet Tier 2 compliance schedule listed in Section 7.2.

Rule 4703 Tier 2 NO_x Compliance Limits			
Turbine Classification Rating	Compliance Option	NO _x Compliance Limit, ppmvd at 15% O ₂	
		Gas Fuel	Liquid Fuel
e) Greater than 10 MW, Simple cycle, and permit condition for greater than 877 hrs/yr operation	Standard	5	25

The turbine in this project is 23 MW with simple cycle; therefore it is subject to limit e) Greater than 10 MW, simple cycle, and permit condition for greater than 877 hrs/yr operation.

Section 5.2, Table 5-4, CO Compliance Limits, requires the owner or operator to operate and maintain the gas turbine such that CO emissions must be less than 200 ppmvd @ 15% O₂.

Rule 4703 does not include a specific averaging period requirement for demonstrating compliance with the CO emission limit.

- Except during periods of startup and shutdown, emission rates from the natural gas-fired turbine engine shall not exceed any of the following limits: 6.20 lb-NO_x/hour (as NO₂) equivalent to 2.5 ppmvd @ 15% O₂, 1.92 lb-SO_x/hour (as SO₂), 4.45 lb-PM₁₀/hour, 24.20 lb-CO/hour equivalent to 16.0 ppmvd @ 15% O₂, 1.75 lb-VOC/hour (as methane) equivalent to 2.0 ppmv @ 15% O₂, or 10 ppmv ammonia @ 15% O₂. All emission limits are based on one hour rolling averages. [District Rules 2201, 4001, and 4703, 5.1.2 & 5.2]

NO_x and CO emission limits of Section 5.1 and Section 5.2 shall not apply during a transitional operation period, which includes bypass transition period, as defined in Section 3.0, provided an operator complies with the applicable requirements specified in Sections 5.3.1 and 5.3.2.

Section 5.3.1 requires the an operator to meet the following conditions:

- The duration of each startup or each shutdown shall not exceed two hours.
- For each bypass transition period, the requirements specified in Section 3.2 shall be met.
- For each primary re-ignition period, the requirements specified in Section 3.20 shall be met¹.
- Each reduced load period shall not exceed one hour.

¹ This requirement is applicable to a gas turbine with dry low-NO_x combustors. Each turbine under this project is equipped with water injection system. Thus, this requirement is not applicable to these units.

The facility has demonstrated compliance with the two hour startup and shutdown duration requirements.

- Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703, 3.23 and 5.3]
- Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.26, 3.29 and 5.3]
- During periods of startup and shutdown, emission rates from the natural gas-fired turbine engine shall not exceed any of the following limits: 25.0 lb-NO_x/hour (as NO₂), 1.92 lb-SO_x/hour (as SO₂), 4.45 lb-PM₁₀/hour, 24.20 lb-CO/hour, or 1.75 lb-VOC/hour (as methane), based on one hour averages. [District Rules 2201]
- The duration of each startup or each shutdown shall not exceed two hours. [District 4703, 5.3.1.1]

Section 5.3.2 requires the emission control system to be in operation and emissions shall be minimized insofar as technologically feasible during each transitional operation period.

- The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2]

Section 6.2.1 requires the owner to operate and maintain continuous emissions monitoring equipment for NO_x and oxygen, or install and maintain APCO-approved alternate monitoring. The facility operates continuous emissions monitoring system which continuously measures and records the exhaust gas NO_x and oxygen concentrations.

- Gas turbine engines shall be equipped with a single continuous emissions monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. The CEM shall meet the requirements of 40 CFR part 60 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rules 2201, 4001, and 4703, 6.2.1]
- Gas turbine engines shall be equipped with a continuous monitoring system to measure and record hours of operation and fuel consumption. [40 CFR 60.334(a); and District Rules 2201 and 4703, 6.2.1]

- The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, maintenance of any continuous emission monitor, continuous emission monitor measurements and calculated NO_x mass emission rates (lb/hr). [District Rules 2201 and 4703, 6.2]

Section 6.2.2 specifies monitoring requirements for turbines without exhaust-gas NO_x control devices. For turbines without exhaust-gas NO_x control devices and without continuous emissions monitoring equipment, the owner or operator shall monitor operational characteristics recommended by the turbine manufacturer or emission control system supplier, and approved by the APCO. The facility operates continuous emissions monitoring system, therefore, this section is not applicable.

Section 6.2.4 requires the facility to maintain all records for a period of five years from the date of data entry and shall make such records available to the APCO upon request.

- All records shall be maintained, retained on-site for a minimum of five years and shall be made available for District inspection upon request. [District Rule 2201 and 4703, 6.2.4]

Section 6.2.5 requires that the owner or operator submit to the APCO, before issuance of the Permit to Operate, information correlating the control system operating to the associated measure NO_x output. Since these units are currently permitted, this information has previously been collected and no further information is needed.

Section 6.2.6 requires the facility to maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, and the type and quantity of fuel used. The facility will be required to maintain a log in accordance with the requirements of this section.

- The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, duration of start-up or shutdown, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6 and 6.2.8]

Section 6.2.8 requires the owners or operators performing startups or shutdowns to keep records of the duration of each startup and shutdown. As discussed in the Section 6.2.6 discussion above for this rule, the facility will maintain an operating log that will satisfy the requirements of this section.

Section 6.3.1 states that the owner or operator of any stationary gas turbine system subject to the provisions of Section 5.0 of this rule shall provide source test information annually regarding the exhaust gas NO_x and CO concentrations. The gas turbine is required to be tested annually to ensure compliance with NO_x and CO concentrations.

- Compliance testing to demonstrate compliance with the PM10, NO_x (as NO₂), VOC, CO, ammonia emission limits, and fuel gas sulfur content requirements of this permit shall be conducted within 60 days of startup and at least once every twelve months. [District Rules 2201, 4001, and 4703, 6.3.1]

Section 6.3.2 specifies source testing requirements for units operating less than 877 hours per year. The turbine at this facility will be allowed to operate in excess of 877 hours per year. Therefore, the requirements of this section are not applicable and no further discussion is required.

Section 6.3.3 requires that the owner or operator of any unit with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. The turbine in this project is not equipped with intermittently operated auxiliary burners; therefore they are not subject to the requirements of this section.

Section 6.4 states that the facility must demonstrate compliance annually with the NO_x and CO emission limits using the following test methods, unless otherwise approved by the APCO and EPA:

- Oxides of nitrogen emissions for compliance tests shall be determined by using EPA Method 7E or EPA Method 20.
- Carbon monoxide emissions for compliance tests shall be determined by using EPA Test Methods 10 or 10B.
- Oxygen content of the exhaust gas shall be determined by using EPA Methods 3, 3A, or 20.

The following condition on the ATC will ensure compliance with the test method requirements of this rule:

- The following test methods shall be used: NO_x - EPA Method 7E or 20; CO - EPA Method 10 or 10B; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half); ammonia - BAAQMD ST-1B; O₂ - EPA Method 3, 3A, or 20; and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335(a) and 40 CFR 60.335(b)(1)]

The District has determined that the facility is operating in compliance with the requirements of this rule, therefore, no further discussion is required.

Rule 4801 – Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

With:

N = moles SO₂

T (Standard Temperature) = 60°F = 520°R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$

EPA F-Factor for Natural Gas: 8,710 dscf/MMBtu at 68 °F, equivalent to

$$\text{Corrected } F - \text{factor} = \left(\frac{8,710 \text{ dscf}}{\text{MMBtu}} \right) \times \left(\frac{60^\circ F + 459.6}{68^\circ F + 459.6} \right) = 8,578 \frac{\text{dscf}}{\text{MMBtu}} \text{ at } 60^\circ F$$

$$\frac{0.00285 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 1.97 \frac{\text{parts}}{\text{million}}$$

$$\text{SulfurConcentration} = 1.97 \frac{\text{parts}}{\text{million}}$$

Since 1.97 ppmv < 2,000 ppmv (or 0.2%), compliance with District Rule 4101 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

This project would not result in an increase in project specific greenhouse gas emissions as there will be no increase in fuel usage at the facility. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct C-3844-7-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix B.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-3844-7-0	999-999	Electrical Generation Component	\$0.00

Appendixes

- A: Current PTO C-3844-1-7
- B: Draft ATC C-3844-7-0

APPENDIX A

Current PTO

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-3844-1-7

EXPIRATION DATE: 11/30/2011

EQUIPMENT DESCRIPTION:

49.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND ELECTRICAL POWER GENERATING SYSTEM CONSISTING OF TWO 25.0 MW PRATT & WHITNEY MODEL #FT4C1 NATURAL GAS-FIRED (TWINPAC CONFIGURATION) GAS TURBINE ENGINES (GTE) WITH DRY LOW NOX (DLN) OR WATER INJECTION TECHNOLOGY, A SHARED SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH OXIDATION CATALYSTS AND INLET AIR FOGGING

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. Both turbine engines shall be operated simultaneously, except during start up and shut down. [District Rule 2201]
6. Gas turbine engines and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater except for up to three minutes in any hour. [District Rule 2201]
7. Gas turbine engines shall be equipped with a continuous monitoring system to measure and record hours of operation and fuel consumption. [District Rules 2201, 4001, and 4703]
8. Gas turbine engines shall be equipped with a single continuous emissions monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. The CEM shall meet the requirements of 40 CFR part 60 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rules 2201, 4001, and 4703]
9. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]
10. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]
11. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
12. Gas turbine engines shall be fired exclusively on natural gas with a sulfur content of no greater than 1.0 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

13. Combined annual emissions from units C-3844-1 and C-3844-5 shall not exceed any of the following limits: 22,816 lb-NOx/year, 7,068 lb-SOx/year, 16,368 lb-PM10/year, 89,032 lb-CO/year, or 6,448 lb-VOC/year. [District Rule 2201]
14. Maximum annual heat input for both natural gas-fired turbine engines combined shall not exceed 2,480,000 MMBtu/year, measured on a calendar year period. [District Rule 2201]
15. Daily combined NOx emissions from both natural gas-fired turbine engines shall not exceed 148.8 lb-NOx/day, measured on a 24 hour rolling period. [District Rule 2201]
16. Annual combined NOx emissions from both natural gas-fired turbine engines shall not exceed 22,816 lb-NOx/year, measured on a calendar year period. [District Rule 2201]
17. Except during thermal stabilization periods, combined emissions from both natural gas-fired turbine engines shall not exceed any of the following limits: 6.20 lb-NOx/hour (as NO₂) equivalent to 2.5 ppmvd @ 15% O₂, 1.92 lb-SOx/hour (as SO₂), 4.45 lb-PM10/hour, 24.20 lb-CO/hour equivalent to 16.0 ppmvd @ 15% O₂, 1.75 lb-VOC/hour (as methane) equivalent to 2.0 ppmv @ 15% O₂, or 10 ppmv ammonia @ 15% O₂. All emission limits are based on one (1) hour rolling averages. [District Rules 2201, 4001, and 4703]
18. During periods of thermal stabilization, combined emissions from both natural gas-fired turbine engines shall not exceed any of the following limits: 25.0 lb-NOx/hour (as NO₂), 1.92 lb-SOx/hour (as SO₂), 4.45 lb-PM10/hour, 24.20 lb-CO/hour, or 1.75 lb-VOC/hour (as methane), based on one hour averages. [District Rules 2201, 4001, and 4703]
19. Thermal stabilization is defined as the start up or shut down time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours as stated in Section 3.25 of Rule 4703. [District Rule 4703]
20. Compliance testing to measure NOx (as NO₂), PM10, CO, VOC, ammonia emissions, and fuel gas sulfur content requirements of this permit shall be conducted at least once every twelve months. [District Rules 2201, 4001, and 4703]
21. Compliance testing to measure NOx (as NO₂), CO, and ammonia emissions shall be conducted within 60 days of switching the turbine combustion emission control technology from Dry Low NOx (DLN) to water injection technology, or vice versa. [District Rules 2201 and 4001]
22. Compliance testing shall be required at least once per twelve-month period for which the technology is used. Switching the turbine combustion emission control technology from Dry Low NOx (DLN) to water injection technology, or vice versa, shall not be required solely for source testing purposes. [District Rules 2201 and 4001]
23. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O₂ = $\{[a-(b \times c/1,000,000)] \times 1,000,000/b\}$, where a = ammonia injection rate (lb/hr)/17 (lb/lb mol), b = dry exhaust gas flow rate (lb/hr)/29 (lb/lb mol), and c = change in measured NOx concentration ppmv at 15% O₂ across the catalyst. [District Rule 4102]
24. Compliance testing shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used, PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, and calculated NOx mass emission rates (lb/hr). [District Rules 2201 and 4703]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F, 5.11, at least once every four calendar quarters. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
32. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
33. All records shall be maintained, retained on-site for a minimum of five (5) years and shall be made available for District inspection upon request. [District Rules 2201 and 4703]

These terms and conditions are part of the Facility-wide Permit to Operate.

APPENDIX B

Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-3844-7-0

LEGAL OWNER OR OPERATOR: WELLHEAD POWER PANOCHÉ, LLC.

MAILING ADDRESS: 650 BERCU T DR STE C
SACRAMENTO, CA 95814

LOCATION: 43649 W PANOCHÉ RD
FIREBAUGH, CA 93622

EQUIPMENT DESCRIPTION:

23.0 MW PRATT & WHITNEY MODEL FT4A-9 NATURAL GAS-FIRED GAS TURBINE ENGINE (GTE) WITH DRY LOW NOX (DLN) OR WATER INJECTION TECHNOLOGY AND A SHARED SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH OXIDATION CATALYSTS AND INLET AIR FOGGING SHARED WITH PERMIT C-3844-1 USED AS A TEMPORARY REPLACEMENT UNIT (TREU) FOR ONE OF THE TURBINE LISTED ON PERMIT C-3844-1

CONDITIONS

1. This unit shall be removed from the site before 180 cumulative days on site in any twelve month period. [District Rule 2201]
2. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
6. This unit shall only operate when one of the turbines listed on permit unit C-3844-1 is not operating. [District Rule 2201]
7. No more than two turbines shall be operated at a time in the facility. [District Rule 2201]
8. Both turbine engines shall be operated simultaneously, except during start up and shut down. [District Rule 2201]
9. Gas turbine engines and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater except for up to three minutes in any hour. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

C-3844-7-0: Mar 2 2011 2:52PM - BRARG : Joint Inspection NOT Required

10. Gas turbine engines shall be equipped with a continuous monitoring system to measure and record hours of operation and fuel consumption. [40 CFR 60.334(a); and District Rules 2201 and 4703, 6.2.1]
11. Gas turbine engines shall be equipped with a single continuous emissions monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. The CEM shall meet the requirements of 40 CFR part 60 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [40 CFR 60.334(a); and District Rules 2201 and 4703, 6.2.1]
12. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]
13. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]
14. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
15. Gas turbine engines shall be fired exclusively on natural gas with a sulfur content of no greater than 1.0 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
16. The sulfur content of each fuel source shall be documented in a valid purchase contract, a supplier certification, a tariff sheet, or a transportation contract. [District Rule 2201 and 40 CFR 60.334(h)(3)]
17. Combined annual emissions from units C-3844-1, '5, '6 and '7 shall not exceed any of the following limits: 22,816 lb-NO_x/year, 7,068 lb-SO_x/year, 16,368 lb-PM₁₀/year, 89,032 lb-CO/year, or 6,448 lb-VOC/year. [District Rule 2201]
18. Maximum annual heat input for both natural gas-fired turbine engines combined shall not exceed 2,480,000 MMBtu/year, measured on a calendar year period. [District Rule 2201]
19. Daily combined NO_x emissions from both natural gas-fired turbine engines shall not exceed 148.8 lb-NO_x/day, measured on a 24 hour rolling period. [District Rule 2201]
20. Annual combined NO_x emissions from both natural gas-fired turbine engines shall not exceed 22,816 lb-NO_x/year, measured on a calendar year period. [District Rule 2201]
21. Except during startup and shutdown periods, combined emissions from both natural gas-fired turbine engines shall not exceed any of the following limits: 6.20 lb-NO_x/hour (as NO₂) equivalent to 2.5 ppmvd @ 15% O₂, 1.92 lb-SO_x/hour (as SO₂), 4.45 lb-PM₁₀/hour, 24.20 lb-CO/hour equivalent to 16.0 ppmvd @ 15% O₂, 1.75 lb-VOC/hour (as methane) equivalent to 2.0 ppmv @ 15% O₂, or 10 ppmv ammonia @ 15% O₂. All emission limits are based on one hour rolling averages. [District Rules 2201, 4001, and 4703, 5.1.2 and 5.2]
22. During periods of startup and shutdown, combined emissions from both natural gas-fired turbine engines shall not exceed any of the following limits: 25.0 lb-NO_x/hour (as NO₂), 1.92 lb-SO_x/hour (as SO₂), 4.45 lb-PM₁₀/hour, 24.20 lb-CO/hour, or 1.75 lb-VOC/hour (as methane), based on one hour averages. [District Rules 2201, 4001, and 4703, 5.3]
23. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.26, 3.29 and 5.3]
24. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703, 3.23 and 5.3]
25. The duration of each startup or each shutdown shall not exceed two hours. Startup and shutdown emissions shall be counted toward all applicable emission limits. [District Rules 2201 and 4703, 5.3.1.1]

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CONDITIONS CONTINUE ON NEXT PAGE

26. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2]
27. Compliance testing to measure NOx (as NO₂), PM₁₀, CO, VOC, ammonia emissions, and fuel gas sulfur content requirements of this permit shall be conducted within 60 days of startup and at least once every twelve months. [District Rules 2201, 4001, and 4703, 6.3.1]
28. Compliance testing to measure NOx (as NO₂), CO, and ammonia emissions shall be conducted within 60 days of switching the turbine combustion emission control technology from Dry Low NOx (DLN) to water injection technology, or vice versa. [District Rules 2201 and 4001]
29. Compliance testing shall be required at least once per twelve-month period for which the technology is used. Switching the turbine combustion emission control technology from Dry Low NOx (DLN) to water injection technology, or vice versa, shall not be required solely for source testing purposes. [District Rules 2201 and 4001]
30. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O₂ = $\{[a-(b \times c/1,000,000)] \times 1,000,000/b\}$, where a = ammonia injection rate (lb/hr)/17 (lb/lb mol), b = dry exhaust gas flow rate (lb/hr)/29 (lb/lb mol), and c = change in measured NOx concentration ppmv at 15% O₂ across the catalyst. [District Rule 4102]
31. Compliance testing shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The following test methods shall be used: NOx - EPA Method 7E or 20; CO - EPA Method 10 or 10B; VOC - EPA Method 18 or 25; PM₁₀ - EPA Method 5 (front half and back half); ammonia - BAAQMD ST-1B; O₂ - EPA Method 3, 3A, or 20; and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335(a), and 40 CFR 60.335(b)(10)]
33. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, maintenance of any continuous emission monitor, continuous emission monitor measurements and calculated NOx mass emission rates (lb/hr). [District Rules 2201 and 4703, 6.2]
34. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, duration of start-up or shutdown, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6 and 6.2.8]
35. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
36. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
37. The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F, 5.11, at least once every four calendar quarters. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
38. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]

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CONDITIONS CONTINUE ON NEXT PAGE

39. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [40 CFR 60.334(j), (j)(5); and District Rule 1080]
40. All records shall be maintained, retained on-site for a minimum of five years and shall be made available for District inspection upon request. [District Rules 2201 and 4703, 6.2.4]

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