

JUL 05 2018

Charlotte Campbell
California Resources Production Corporation
11109 River Run Blvd
Bakersfield, CA 93311

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: C-273
Project Number: C-1181625

Dear Ms. Campbell:

Enclosed for your review and comment is the District's analysis of California Resources Production Corporation's application for an Authority to Construct for the installation of five new natural gas and field gas-fired micro turbines, each with a maximum heat input of 2.28 MMBtu/hr and powering a 200 kW electrical generator, at various locations within the same stationary source, C-273, within Kings County.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice and 45-day EPA notice comment periods, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Jesse A. Garcia of Permit Services at (559) 230-5918.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:jag

Enclosures

cc: Tung Le, CARB (w/ enclosure) via email
cc: Gerardo C. Rios, EPA (w/ enclosure) via email

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Title 17 § 94202(u) defines as: California Public Utility Commission quality natural gas. Since the facility is proposing to fire these micro turbines on non PUC quality natural gas, in addition to PUC gas, the executive order would no longer be valid. Therefore, the micro turbines will be subject to District permits.

Title V Permit Requirements:

As determined in Section VII.C.5 of this document, the pre-project potential emissions for NOx and VOC exceed major source thresholds of District Rule 2201. Therefore, pursuant to District Rule 2520, the facility will have up to 12 months after becoming a major source (commencing operation of the units authorized in project C-1172045 that made the facility a major source) to either submit a Title V Application or comply with District Rule 2530 *Federally Enforceable Potential to Emit*. Since the following is true:

1. The facility is not subject to Rule 2520 or 2530 until exceeding the major source thresholds and,
2. The facility will only become a major source if implementing the ATCs issued in project C-1172045 and,
3. The facility will not become a major source if implementing the ATCs issued in this project without implementing the ATCs issued in project C-1172045;

The following condition listed on the ATCs issued in project C-1172045 ensures compliance:

- This facility will have up to 12 months after commencing operation authorized by this Authority to Construct (ATC) to either submit a Title V application or comply with District Rule 2530 - Federally Enforceable Potential to Emit. [District Rule 2520]

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (2/18/16 ²)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
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 4408	Glycol Dehydration Systems (12/19/02)
Rule 4409	Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities (4/20/05)
Rule 4703	Stationary Gas Turbines (9/20/07)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment

² District Rule was last amended on 2/18/16; however, this version of the rule is not SIP approved yet. Therefore, the reference of the current SIP approved version of the rule (amended on 4/21/11) will be included on conditions requiring offsets.

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's 'Kettleman North Dome Oil Field' is located in Kings County, within Section 11P, Township 22S, Range 17E. The micro turbines will be initially operated at the facility's '11P' compressor station; however, the facility has requested the ability to operate the micro turbines at various unspecified locations within the same stationary source (C-273). The District has verified that the entire stationary source is not located within 1,000 feet of the outer boundaries 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

The micro turbines will be used to generate electricity to power facility operations using the waste gas that would otherwise be flared or vented into the atmosphere. In addition to produced gas, the facility has requested to use PUC quality natural gas as fuel. The micro turbines will be installed in a "multi-pack" configuration with five turbines in one pack. Each turbine in a pack can be operated in parallel or independent of others.

The facility operates various equipment throughout the stationary source in remote areas where it is not feasible to connect to the power grid. The compact and relatively lightweight multi-pack configuration makes these turbines portable and will be allowed to be operated at various unspecified locations within the same Stationary Source (C-273). Initially, these turbines will be operated at facility's '11P' compressor station, but could be moved around as needed.

V. Equipment Listing

- C-273-52-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #16)
- C-273-53-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #17)
- C-273-54-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #18)

C-273-55-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #19)

C-273-56-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #20)

VI. Emission Control Technology Evaluation

Emissions from gas-fired micro turbines include NO_x, SO_x, PM₁₀, CO, and VOC.

NO_x is the major pollutant of concern when burning natural gas. NO_x formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_x) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_x). Due to the low fuel nitrogen content of natural gas, nearly all NO_x emissions are thermal NO_x.

These micro turbines will use lean pre-mix combustion system and are expected to generate NO_x at 9 ppmvd @ 15% O₂ which meets the limit in BACT Guideline 3.4.9.

Lean-burn technology increases the volume of air in the combustion process and therefore increases the heat capacity of the mixture. This technology also incorporates improved swirl patterns to promote thorough air/fuel mixing. This in turn lowers the combustion temperature and reduces NO_x formation.

VII. General Calculations

A. Assumptions

To streamline emission calculations, PM_{2.5} emissions are assumed to be equal to PM₁₀ emissions. Only if needed to determine if a project is a Federal major modification for PM_{2.5} will specific PM_{2.5} emission calculations be performed.

- Operating schedule is 24 hours per day and 365 days per year (worst case)
- Maximum heat input of each micro turbine is 2.28 MMBtu/hr and each micro turbines powers a 200 kW electric generator (per manufacturer)
- Natural gas F-factor is 8,578 dscf/MMBtu (corrected to 60°F based on F-factor of 8,710 dscf/MMBtu @ 68°F per EPA 40 CFR 60 Appendix B, Method 19)
- Higher heating value of natural gas is 1,000 Btu/scf (District Practice)
- Molar Specific Volume of a gas @ 60 °F is 379.5 ft³/lb-mol
- Molecular weight for NO_x: 46 lb/lb-mole (as NO₂)
- Molecular weight for CO: 28 lb/lb-mole
- Molecular weight for VOC: 16 lb/lb-mole (as CH₄)
- Molecular weight for S: 64 lb/lb-mole (as SO₂)
- Sulfur content of natural gas: 10.0 grain-S/100 scf (per applicant)

B. Emission Factors

Emission Factors			
Pollutants	Proposed	lb/MMBtu	Source
NO _x	9 ppmvd @ 15% O ₂	0.033 ⁽¹⁾	Proposed by the applicant (Also BACT limit)
SO _x	10 grain-S/100 dscf	0.0285 ⁽²⁾	Mass Balance below
PM ₁₀	7.6 lb/10 ⁶ scf	0.0076 ⁽³⁾	AP-42 (7/98) Table 1.4-2 (see Appendix B)
CO	40 ppmvd @ 15% O ₂	0.09 ⁽¹⁾	Proposed by the applicant
VOC	7 ppmvd @ 15% O ₂	0.009 ⁽¹⁾	Proposed by the applicant

(1) Emission factors converted from ppmvd to lb/MMBtu using the following equations:

$$\frac{9 \text{ parts} \cdot \text{NO}_x}{10^6 \text{ parts}} \left(\frac{8,578 \text{ dscf}}{\text{MMBtu}} \right) \frac{46 \text{ lb}}{\text{lb} \cdot \text{mol}} \left(\frac{20.9}{20.9 - 15} \right) \frac{1 \text{ lb} \cdot \text{mol}}{379.5 \text{ dscf}} = 0.033 \left(\frac{\text{lb} \cdot \text{NO}_x}{\text{MMBtu}} \right)$$

$$\frac{40 \text{ parts} \cdot \text{CO}}{10^6 \text{ parts}} \left(\frac{8,578 \text{ dscf}}{\text{MMBtu}} \right) \frac{28 \text{ lb}}{\text{lb} \cdot \text{mol}} \left(\frac{20.9}{20.9 - 15} \right) \frac{1 \text{ lb} \cdot \text{mol}}{379.5 \text{ dscf}} = 0.09 \left(\frac{\text{lb} \cdot \text{CO}}{\text{MMBtu}} \right)$$

$$\frac{7 \text{ parts} \cdot \text{VOC}}{10^6 \text{ parts}} \left(\frac{8,578 \text{ dscf}}{\text{MMBtu}} \right) \frac{16 \text{ lb}}{\text{lb} \cdot \text{mol}} \left(\frac{20.9}{20.9 - 15} \right) \frac{1 \text{ lb} \cdot \text{mol}}{379.5 \text{ dscf}} = 0.009 \left(\frac{\text{lb} \cdot \text{VOC}}{\text{MMBtu}} \right)$$

(2) SO_x emission factor is calculated as follows based on the proposed 10 grain of Sulfur/100 dscf:

$$\frac{10 \text{ gr} \cdot \text{S}}{100 \text{ dscf}} \left(\frac{\text{dscf}}{1,000 \text{ Btu}} \right) \frac{10^6 \text{ Btu}}{\text{MMBtu}} \left(\frac{1 \text{ lb}}{7,000 \text{ gr}} \right) \frac{64 \text{ lb} \cdot \text{SO}_2}{32 \text{ lb} \cdot \text{S}} = 0.0285 \frac{\text{lb} \cdot \text{SO}_2}{\text{MMBtu}}$$

(3) PM₁₀ emission factor converted to units of lb/MMBtu as follows:

$$\frac{7.6 \text{ lb} - \text{PM}_{10}}{10^6 \text{ dscf}} \left(\frac{\text{dscf}}{1,000 \text{ Btu}} \right) \frac{10^6 \text{ Btu}}{\text{MMBtu}} = 0.0076 \frac{\text{lb} \cdot \text{PM}_{10}}{\text{MMBtu}}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since these are new emissions units, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

The daily and annual PE2 for each turbine is calculated using the following equations and summarized in the tables below:

Daily PE2 = EF (lb/MMBtu) x 2.28 (MMBtu/hr) x 24 (hr/day)

Annual PE2 = EF (lb/MMBtu) x 2.28 (MMBtu/hr) x 24 (hr/day) x 365 (days/year)
= EF (lb/MMBtu) x 2.28 (MMBtu/hr) x 8,760 (hr/year)

Daily PE2				
Pollutant	Emission Factor (lb/MMBtu)	Burner Rating (MMBtu/hr)	Operating Hours (hr/day)	Daily PE2 (lb/day)
NO _x	0.033	2.28	24	1.8
SO _x	0.0285	2.28	24	1.6
PM ₁₀	0.0076	2.28	24	0.4
CO	0.09	2.28	24	4.9
VOC	0.009	2.28	24	0.5*

* Pursuant to District Policy APR 1130, a daily permitted emissions of any criteria pollutant of less than or equal to 0.5 lb/day per permit unit is rounded to zero (0) lb/day, only for the purposes of determining whether New and Modified Source Review (NSR) rule requirements (i.e. SB 288 and Federal Major Modifications) are triggered.

Annual PE2				
Pollutant	Emission Factor (lb/MMBtu)	Burner Rating (MMBtu/hr)	Operating Hours (hr/year)	Annual PE2 (lb/year)
NO _x	0.033	2.28	8,760	659
SO _x	0.0285	2.28	8,760	569
PM ₁₀	0.0076	2.28	8,760	152
CO	0.09	2.28	8,760	1,798
VOC	0.009	2.28	8,760	180

Total PE2 for all five micro turbines:

PE2		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	9.0	3,295
SO _x	8.0	2,845
PM ₁₀	2.0	760
CO	24.5	8,990
VOC	2.5	900

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

Pursuant to District Rule 2201, the 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 (AER) that have occurred at the source, and which have not been used on-site.

SSPE1 is taken from projects C-1172045, C-1172745 and C-1181170 and summarized in the table below:

SSPE1 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
C-273-18-3	5,622	69	230	24,321	6,478
C-273-19-3	5,622	69	230	24,321	6,478
C-273-20-3	5,622	69	230	24,321	6,478
C-273-21-1	0	0	0	0	56,575*
C-273-22-1	0	0	0	0	11,315*
C-273-23-1	0	0	0	0	11,315*
C-273-24-1	669	1	35	612	35
ATC C-273-32-0	659	569	152	1,798	180
ATC C-273-33-0	659	569	152	1,798	180
ATC C-273-34-0	659	569	152	1,798	180
ATC C-273-35-0	659	569	152	1,798	180
ATC C-273-36-0	659	569	152	1,798	180
ATC C-273-37-0	659	569	152	1,798	180
ATC C-273-38-0	659	569	152	1,798	180
ATC C-273-39-0	659	569	152	1,798	180
ATC C-273-40-0	659	569	152	1,798	180
ATC C-273-41-0	659	569	152	1,798	180
ATC C-273-42-0	659	569	152	1,798	180
ATC C-273-43-0	659	569	152	1,798	180
ATC C-273-44-0	659	569	152	1,798	180
ATC C-273-45-0	659	569	152	1,798	180
ATC C-273-46-0	659	569	152	1,798	180
ATC C-273-47-0	0	0	0	0	1,514*
ATC C-273-48-0	0	0	0	0	92*
ATC C-273-49-0	0	0	0	0	92*
ATC C-273-50-0	0	0	0	0	364*
ATC C-273-51-0	1,667	202	476	12,144	4,008
SSPE1	29,087	8,945	3,481	112,689	107,444
SSPE1 for Major Source (excluding fugitive emissions)*	29,087	8,945	3,481	112,689	26,177

*Fugitive emissions only. Pursuant to Section 3.19 of Rule 2201, fugitive emissions shall be included in all calculations, except as provided for in Section 3.24 (Major Source calculations) and as allowed in the applicable 40 CFR Part 51.165.

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

Based on the annual PE2 for units C-273-52-0 thru '-56-0 calculated in Section VII.C.2 of this documents, SSPE2 is summarized in the table below:

SSPE2 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
C-273-18-3	5,622	69	230	24,321	6,478
C-273-19-3	5,622	69	230	24,321	6,478
C-273-20-3	5,622	69	230	24,321	6,478
C-273-21-1	0	0	0	0	56,575*
C-273-22-1	0	0	0	0	11,315*
C-273-23-1	0	0	0	0	11,315*
C-273-24-1	669	1	35	612	35
ATC C-273-32-0	659	569	152	1,798	180
ATC C-273-33-0	659	569	152	1,798	180
ATC C-273-34-0	659	569	152	1,798	180
ATC C-273-35-0	659	569	152	1,798	180
ATC C-273-36-0	659	569	152	1,798	180
ATC C-273-37-0	659	569	152	1,798	180
ATC C-273-38-0	659	569	152	1,798	180
ATC C-273-39-0	659	569	152	1,798	180
ATC C-273-40-0	659	569	152	1,798	180
ATC C-273-41-0	659	569	152	1,798	180
ATC C-273-42-0	659	569	152	1,798	180
ATC C-273-43-0	659	569	152	1,798	180
ATC C-273-44-0	659	569	152	1,798	180
ATC C-273-45-0	659	569	152	1,798	180
ATC C-273-46-0	659	569	152	1,798	180
ATC C-273-47-0	0	0	0	0	1,514*
ATC C-273-48-0	0	0	0	0	92*
ATC C-273-49-0	0	0	0	0	92*
ATC C-273-50-0	0	0	0	0	364*

ATC C-273-51-0	1,667	202	476	12,144	4,008
ATC C-273-52-0	659	569	152	1,798	180
ATC C-273-53-0	659	569	152	1,798	180
ATC C-273-54-0	659	569	152	1,798	180
ATC C-273-55-0	659	569	152	1,798	180
ATC C-273-56-0	659	569	152	1,798	180
SSPE2	32,382	11,790	4,241	121,679	108,344
SSPE2 for Major Source (excluding fugitive emissions)*	32,382	11,790	4,241	121,679	27,077

*Fugitive emissions only. Pursuant to Section 3.19 of Rule 2201, fugitive emissions shall be included in all calculations, except as provided for in Section 3.24 (Major Source calculations) and as allowed in the applicable 40 CFR Part 51.165.

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
SSPE1	29,087	8,945	3,481	3,481	112,689	26,177
SSPE2	32,282	11,790	4,241	4,241	121,679	27,077
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	No	Yes

Note: PM_{2.5} assumed to be equal to PM₁₀

As seen in the table above, the facility is an existing Major Source for NO_x and VOC emissions and will remain a major source for NO_x and VOC emissions as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO ₂	SO ₂	PM	PM ₁₀	CO	VOC
Estimated Facility PE before Project Increase (lb/year)	29,087	8,945	3,481	3,481	112,689	26,117*
Estimated Facility PE before Project Increase (ton/year)	14.5	4.5	1.7	1.7	56.3	13.1
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	N	N	N	N	N

*Since this source is not included in the 28 specific source categories specified in 40 CFR 51.165, the fugitive emissions are not included in the Rule 2410 Major Source Determination.

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 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 District Rule 2201.

Since these are new emissions units, 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."

Since this facility is a major source for NO_x and VOC, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	3,295	50,000	No
VOC	900	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Increases in emissions less than or equal to 0.5 lb/day per permit unit round to zero (0) lb/day for Federal Major Modification purposes per District Policy APR 1130. Since the VOCs from each turbine are 0.5 lb/day they are rounded down to zero for Federal Major Modification purposes.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

Step 1

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project.

The project's combined total emission increases are calculated in VII.C.2 and compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO _x *	3,295	0	Yes

*If there is any emission increases in NO_x or VOC, this project is a Federal Major Modification and no further analysis is required.

Since there is an increase in NO_x emissions, this project constitutes a Federal Major Modification. Federal Offset quantities are calculated below.

Federal Offset Quantities:

The Federal offset quantity is only calculated only for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit times the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC.

NOx		Federal Offset Ratio	1.5
Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
C-273-52-0 thru '-56-0	0	3,295	3,295
Net Emission Change (lb/year):			3,295
Federal Offset Quantity: (NEC * 1.5)			4,943

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO₂	SO₂	PM	PM₁₀	CO	VOC
Total PE from New and Modified Units (lb/year)	3,295	2,845	760	760	8,990	900
Total PE from New and Modified Units (ton/year)	1.6	1.4	0.4	0.4	4.5	0.5
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis is required.

10. 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. Detailed QNEC calculations are included in Appendix C.

VIII. Compliance Determination

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

As seen in Section VII.C.2 above, the applicant is proposing to install new micro turbines each with a PE2 greater than 2 lb/day for CO emissions only. However BACT is not triggered for CO emissions since SSPE2 for CO emissions is not greater than 200,000 lb/year, as demonstrated in Section VII.C.5 above. Therefore, BACT is not triggered for any pollutants for new emissions units with a PE > 2 lb/day.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.8 above, this project constitutes a Federal Major Modification for NO_x emissions. Therefore BACT is triggered for NO_x for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

BACT Guideline 3.4.9, applies to gas turbines less than 3 MW with uniform load (Appendix D).

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (see Appendix D), BACT has been satisfied with the following:

NO_x: 9 ppmvd @ 15% O₂ based on a three-hour average.

Therefore, the following condition will be listed on the ATC to ensure compliance:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	32,382	11,790	4,241	121,679	108,344
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	No	No	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x and VOC emissions; however, increases in emissions less than or equal to 0.5 lb/day per permit unit round to zero (0) lb/day for offset purposes per District Policy APR 1130. Since the VOCs from each turbine are 0.5 lb/day they are rounded down to zero for offset purposes. Therefore, offsets calculations will only be performed for NO_x emissions.

NO_x:

The quantity of offsets in pounds per year for NO_x is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

$$\text{Offsets Required (lb/year)} = (\Sigma[\text{PE2} - \text{BE}] + \text{ICCE}) \times \text{DOR, for all new or modified emissions units in the project,}$$

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 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,

$$BE = HAE$$

The facility is proposing to install new emissions units; therefore BE = 0. Also, there are no increases in cargo carrier emissions; therefore offsets for each unit can be determined as follows:

$$\text{Offsets Required (lb/year)} = ([PE2 - BE] + ICCE) \times DOR$$

$$PE2 (NO_x) = 695 \text{ lb/year}$$

$$BE (NO_x) = 0 \text{ lb/year}$$

$$ICCE = 0 \text{ lb/year}$$

The project is a Federal Major Modification and therefore the correct offset ratio for NO_x and VOCs is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of NO_x ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([695 - 0] + 0) \times 1.5 \\ &= 695 \times 1.5 \\ &= 1,043 \text{ lb NO}_x/\text{year} \end{aligned}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

$$\begin{aligned} \text{Quarterly offsets required (lb/qtr)} &= (1,043 \text{ lb NO}_x/\text{year}) \div (4 \text{ quarters/year}) \\ &= 260.75 \text{ lb/qtr} \end{aligned}$$

As shown in the calculation above, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and $X + 4 = Y.z$)				
Value of z	Quarter 1	Quarter 2	Quarter 3	Quarter 4
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

Therefore the appropriate quarterly emissions to be offset for each unit are as follows:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>Total Annual</u>
260	261	261	261	1,043

The appropriate quarterly emissions to be offset for all five units are as follows:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>Total Annual</u>
1,300	1,305	1,305	1,305	5,215

The applicant has stated that the facility plans to use ERC certificate S-1994-2 to offset the increases in NO_x emissions associated with this project. The above certificate has available quarterly NO_x credits as follows:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #S-1994-2	12,485	12,624	12,762	12,762

As seen above, the facility has sufficient credits to fully offset the quarterly NO_x emissions increases associated with this project.

Proposed Rule 2201 (offset) Conditions:

The following conditions will be listed on each ATC:

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_x emission reduction credits for the following quantity of emissions: 1st quarter - 260 lb, 2nd quarter - 261 lb, 3rd quarter - 261 lb, and 4th quarter - 261 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201]
- ERC Certificate Number S-1994-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed,
- d. Any project with an SSPE of greater than 20,000 lb/year for any pollutant, and/or
- e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

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.

As demonstrated in Sections VII.C.8, this project constitutes a Federal Major Modification; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. 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 Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	29,087	32,382	20,000 lb/year	Yes
SO _x	8,945	11,790	54,750 lb/year	No
PM ₁₀	3,481	4,241	29,200 lb/year	No
CO	112,689	121,679	200,000 lb/year	No
VOC	107,444	108,344	20,000 lb/year	No

As detailed above, offset threshold is surpassed for NO_x emissions with this project; therefore public noticing is required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	32,382	29,087	3,295	20,000 lb/year	No
SO _x	11,790	8,945	2,845	20,000 lb/year	No
PM ₁₀	4,241	3,481	760	20,000 lb/year	No
CO	121,679	112,689	8,990	20,000 lb/year	No
VOC	108,344	107,444	900	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.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for being a Federal Major Modification.

Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. 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:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]
- The turbine shall only burn produced gas and/or PUC quality gas with a fuel sulfur concentration not exceeding 10 grain/100 dscf. [District Rules 2201 and 4801]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, *Source Testing Frequency (10/9/97)*, source testing for NO_x, SO_x, PM₁₀, CO, and VOC emissions is not required for emission units with uncontrolled emissions less than 30 pound per day for each of these pollutants. Although the manufacturer has guaranteed low NO_x emissions based on the design of the micro turbines, since there is no add-on control emissions can be considered uncontrolled for the purpose of this section. Therefore, as calculated in Section VII.C.2, since emissions are less than 30 pounds per day for each pollutant, initial and annual source testing will not be required. However, in lieu of source testing, initial and annual monitoring of NO_x, CO, and O₂ concentrations using a portable emission monitor will be required as discussed in monitoring section below.

2. Monitoring

As discussed under source testing above, since the margin of compliance for the micro turbines is low (manufacturer guarantee for NO_x is the same as what BACT Guideline 3.4.9 would require if these units were subject to BACT), initial and annual monitoring of NO_x, CO, and O₂ concentrations using a portable emission monitor will be required. Therefore, the following conditions will be listed on each ATC to ensure compliance:

- Permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ within 60 days of initial start-up at each location and at least once every 12 months thereafter, using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. [District Rule 2201]
- If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 2201]
- All emission monitoring readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 2201]

Additionally, non-PUC fuel source will be tested to maintain compliance with the fuel sulfur limit:

- Permittee shall measure and record fuel gas sulfur content (as H₂S) within 60 days of initial start-up, upon any change in the gas fuel source, and at least once every 12 months thereafter. [District Rule 2201]
- Permittee shall determine sulfur content of gas consumed by the turbine using ASTM method D3246 or double GC for H₂S and mercaptans. [District Rule 2201]

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following conditions are listed on the ATCs to ensure compliance:

- Permittee shall maintain the following records: 1) the date and time of O₂ and NO_x measurements; 2) the O₂ concentration in percent and the measured NO_x concentration corrected to 15% O₂; 3) make and model of exhaust gas analyzer; 4) exhaust gas analyzer calibration records; and 5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]

- Permittee shall maintain an accurate record of each location where this turbine is operated and the sulfur content (as H₂S) of the gas from each fuel source. [District Rule 2201]
- {3465} Records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 2201]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix E of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this facility is a new major source and this project does constitute a Federal Major Modification, therefore this requirement is applicable. The Facility's compliance certification is included in Appendix F.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a five micro turbines.

Since the project will provide electrical power to be used at the existing locations, the existing sites will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

This facility is becoming a major source for NO_x and VOC emissions as a result of project C-1172045. Pursuant to Rule 2520 and as required by permit condition, the facility will have up to 12 months after commencing operation of the ATCs issued in that project to either submit a Title V Application or comply with District Rule 2530 *Federally Enforceable Potential to Emit*. The following condition listed on ATCs issued in project C-1172045 ensure compliance:

- This facility will have up to 12 months after commencing operation authorized by this Authority to Construct (ATC) to either submit a Title V application or comply with District Rule 2530 - Federally Enforceable Potential to Emit. [District Rule 2520]

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

40 CFR Part 60, Subpart GG applies to stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr (§ 60.330(a)). Each of these micro turbines has a maximum heat input of 2.28 MMBtu/hr; therefore, the requirements of Subpart GG are not applicable to these turbines.

40 CFR Part 60, Subpart KKKK applies to stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr (§ 60.4305(a)). Each of these micro turbines has a maximum heat input of 2.28 MMBtu/hr; therefore, the requirements of Subpart KKKK are not applicable to these turbines.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63.

40 CFR Part 63, Subpart HH applies to oil and natural gas production facilities that are major sources for HAP emissions. Since this facility is not a major source for HAP emissions, the requirements of Subpart HH do not apply.

40 CFR Part 63, Subpart YYYY applies to stationary gas turbines at major HAP sources with a rated peak power greater than 1.0 MW (§ 63.6090(b)(3)). Each of these micro turbines has a maximum peak power rating of 0.2 MW; therefore, the requirements of Subpart YYYY are not applicable to these turbines.

Rule 4101 Visible Emissions

Rule 4101 states that 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 micro turbines will be fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Similarly, visible emissions are not expected from the operation of the gas processing plant. Therefore, the following condition will be listed on all ATCs to ensure compliance:

- {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

Rule 4102 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 and the following condition will be listed on all ATCs to ensure compliance:

- {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.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (Appendix E), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown in the following:

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 52-0 thru 56-0 (Turbines)	0.04	0.00	0.01	1.27E-07	No	Yes
Project Totals	0.04	0.00	0.01	1.27E-07		
Facility Totals	>1	0.19	0.02	6.44E-06		

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million.

As demonstrated above, T-BACT is not required for the micro turbines under this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

The following conditions will be included on each ATC to ensure compliance with the HRA parameters:

- This micro turbine shall not operate closer than 804 meters from the property boundary. [District Rule 4102]
- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

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.

The emission factor of 0.0076 lb-PM₁₀/MMBtu is converted into units of grain/dscf as follows:

$$0.0076 \frac{\text{lb}}{10^6 \text{ Btu}} \times \frac{453.6 \text{ g}}{1 \text{ lb}} \times \frac{10^6 \text{ Btu}}{9,051 \text{ dscf}} \times \frac{0.35 \text{ Btu}_{\text{out}}}{1 \text{ Btu}_{\text{in}}} \times \frac{15.43 \text{ grain}}{\text{g}} = 0.002 \frac{\text{grain}}{\text{dscf}}$$

Since 0.002 grain/dscf is less than 0.1 grain/dscf, compliance with this rule is expected. Therefore, the following condition will be listed on each turbine ATC to ensure compliance:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NOx @ 15% O₂ (equivalent to 0.033 lb-NOx/MMBtu); 0.0285 lb-SOx/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]

Rule 4301 Fuel Burning Equipment

Rule 4301 limits air contaminant emissions from fuel burning equipment as defined in the rule. Section 3.1 defines fuel burning equipment as "any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer".

Gas turbines primarily produce power mechanically, i.e. the products of combustion pass directly across the turbine blades which causes the turbine shaft to rotate. The turbine shaft is coupled to an electrical generator shaft, which rotates and produces electricity. Because gas turbines primarily produce power by mechanical means, it does not meet the definition of fuel burning equipment (stated above). Therefore, Rule 4301 does not apply to the affected equipment and no further discussion is required.

Rule 4703 Stationary Gas Turbines

This rule applies 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) and/or a maximum heat input rating of more than 3,000,000 Btu per hour, except as provided in Section 4.0.

Each of the micro turbine in this project is rated at 0.2 MW and has a maximum heat input rating of 2,228,000 Btu/hr; therefore, this rule does not apply.

Rule 4801 Sulfur Compounds

This rule contains a limit on sulfur compounds. The limit at the point of discharge is 0.2 percent by volume, 2000 ppmv, calculated as sulfur dioxide (SO₂), on a dry basis averaged over 15 consecutive minutes.

$$\text{Volume SO}_2 = nRT/P$$

Where,

n = moles SO₂

T (standard temperature) = 60 °F or 520 °R

R (universal gas constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$

$$0.0285 \frac{\text{lb} \cdot \text{SO}_2}{\text{MMBtu}} \times \frac{1 \text{ MMBtu}}{8,710 \text{ scf}_{\text{exhaust}}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb} \cdot \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times 1,000,000 \text{ ppm} = 19.4 \text{ ppmv}$$

Since 19.4 ppmv is ≤ 2000 ppmv, the turbines are expected to comply with Rule 4801; therefore, the following condition will be listed on each ATC to ensure compliance:

- The turbine shall only burn produced gas and/or PUC quality gas with a fuel sulfur concentration not exceeding 10 gr/100 dscf. [District Rules 2201 and 4801]

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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 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; and
- 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 prepared or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

On December 17, 2009, the District's Governing Board adopted a policy, APR 2005, *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*, for addressing GHG emission impacts when the District is Lead Agency under CEQA and approved the District's guidance document for use by other agencies when addressing GHG impacts as lead agencies under CEQA. Under this policy, the District's determination of significance of project-specific GHG emissions is founded on the principal that projects with GHG emission reductions consistent with AB 32 emission reduction targets are considered to have a less than significant impact on global climate change. Consistent with District Policy 2005, projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, would be determined to have a less than significant individual and cumulative impact for GHG emission.

The California Air Resources Board (ARB) adopted a Cap-and-Trade regulation as part one of the strategies identified for AB 32. This Cap-and-Trade regulation is a statewide plan, supported by a CEQA compliant environmental review document, aimed at reducing or mitigating GHG emissions from targeted industries. Facilities subject to the Cap-and-Trade regulation are subject to an industry-wide cap on overall GHG emissions. Any growth in emissions must be accounted for under that cap such that a corresponding and equivalent reduction in emissions must occur to allow any increase. Further, the cap decreases over time, resulting in an overall decrease in GHG emissions.

Under District policy APR 2025, *CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation*, the District finds that the Cap-and-Trade is a regulation plan approved by ARB, consistent with AB32 emission reduction targets, and supported by a CEQA compliant environmental review document. As such, consistent with District Policy 2005, projects complying with Cap-and-Trade requirements are determined to have a less than significant individual and cumulative impact for GHG emissions.

Industries covered by Cap-and-Trade are identified in the regulation under section 95811, Covered Entities:

1. Group 1: Large industrial facilities

These types of facilities are subject to Cap and Trade, and the specific companies covered are listed at <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>, Section 95811 (a), under the "Publicly Available Market Information" section (list maintained by the California Air Resources Board).

2. Group 2: Electricity generation facilities located in California, or electricity importers

These types of facilities are subject to Cap and Trade (section 95811, b).

3. Group 3: Suppliers of Natural Gas, Suppliers of Reformulated Gasoline Blendstock for Oxygenate Blending and Distillate Fuel Oil, Suppliers of Liquefied Petroleum Gas, and Suppliers of Blended Fuels

These entities are subject to Cap and Trade compliance obligations which must cover all fuels (except jet fuels) identified in section 95811 (c) through (f) of the Cap-and-Trade regulation delivered to end users in California, less the fuel delivered to covered entities (group 1 above).

This facility is subject to the Cap-and-Trade regulation. Therefore, as discussed above, consistent with District Policies APR 2005 and APR 2025, the District concludes that the GHG emissions increases associated with this project would have a less than significant individual and cumulative impact on global climate change.

District CEQA Findings

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project will occur at an existing facility and the project involves negligible or no expansion of the existing use. Furthermore, the District determined that the project will not have a significant effect on the environment. The District finds that the project is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline §15301 (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)).

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATCs C-273-52-0 thru '-56-0 subject to the permit conditions on the attached draft ATC in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-273-32-0 thru '-46-0	3020-08A-A	200 kW electric generation	\$284

Appendixes

- A: Draft ATCs
- B: AP-42 Emission Factors
- C: Quarterly Net Emissions Change (QNEC)
- D: BACT Guideline 3.4.9 and BACT Analysis
- E: HRA/AAQA Summary
- F: Compliance Certification

APPENDIX A

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-273-52-0

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP.
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: KETTLEMAN NORTH DOME UNIT
KINGS COUNTY, CA

EQUIPMENT DESCRIPTION:

2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #16)

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 247 lb, 2nd quarter - 247 lb, 3rd quarter - 247 lb, and fourth quarter - 248 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
2. ERC Certificate Number S-1994-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This micro turbine shall not operate closer than 804 meters from the property boundary. [District Rule 4102]
6. {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]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

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Arnaud Marjollet, Director of Permit Services
C-273-52-0 Jun 21 2018 7:38AM - GARCIAJ Joint Inspection NOT Required

7. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]
8. The turbine shall only burn produced gas and/or PUC quality gas with a fuel sulfur concentration not exceeding 10 grain/100 dscf. [District Rules 2201 and 4801]
9. Permittee shall measure and record fuel gas sulfur content (as H₂S) within 60 days of initial start-up, upon any change in the gas fuel source, and at least once every 12 months thereafter. [District Rule 2201]
10. Permittee shall determine sulfur content of gas consumed by the turbine using ASTM method D3246 or double GC for H₂S and mercaptans. [District Rule 2201]
11. Permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ within 60 days of initial start-up at each location and at least once every 12 months thereafter, using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. [District Rule 2201]
12. If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 2201]
13. All emission monitoring readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 2201]
14. Permittee shall maintain the following records: (1) the date and time of O₂ and NO_x measurements, (2) the O₂ concentration in percent and the measured NO_x concentration corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]
15. Permittee shall maintain an accurate record of each location where this turbine is operated and the sulfur content (as H₂S) of the gas from each fuel source. [District Rule 2201]
16. {3465} Records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-273-53-0

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP.
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: KETTLEMAN NORTH DOME UNIT
KINGS COUNTY, CA

EQUIPMENT DESCRIPTION:

2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #17)

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 247 lb, 2nd quarter - 247 lb, 3rd quarter - 247 lb, and fourth quarter - 248 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
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3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This micro turbine shall not operate closer than 804 meters from the property boundary. [District Rule 4102]
6. {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]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

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Arnaud Marjolle, Director of Permit Services
C-273-53-0 Jun 21 2016 7:38AM -- GARCIAJ Joint Inspection NOT Required

7. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]
8. The turbine shall only burn produced gas and/or PUC quality gas with a fuel sulfur concentration not exceeding 10 grain/100 dscf. [District Rules 2201 and 4801]
9. Permittee shall measure and record fuel gas sulfur content (as H₂S) within 60 days of initial start-up, upon any change in the gas fuel source, and at least once every 12 months thereafter. [District Rule 2201]
10. Permittee shall determine sulfur content of gas consumed by the turbine using ASTM method D3246 or double GC for H₂S and mercaptans. [District Rule 2201]
11. Permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ within 60 days of initial start-up at each location and at least once every 12 months thereafter, using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. [District Rule 2201]
12. If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 2201]
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14. Permittee shall maintain the following records: (1) the date and time of O₂ and NO_x measurements, (2) the O₂ concentration in percent and the measured NO_x concentration corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]
15. Permittee shall maintain an accurate record of each location where this turbine is operated and the sulfur content (as H₂S) of the gas from each fuel source. [District Rule 2201]
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DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-273-54-0

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP.
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: KETTLEMAN NORTH DOME UNIT
KINGS COUNTY, CA

EQUIPMENT DESCRIPTION:

2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #18)

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 247 lb, 2nd quarter - 247 lb, 3rd quarter - 247 lb, and fourth quarter - 248 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
2. ERC Certificate Number S-1994-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This micro turbine shall not operate closer than 804 meters from the property boundary. [District Rule 4102]
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CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

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Arnaud Marjolle, Director of Permit Services
C-273-54-0 Jun 21 2018 7:38AM - GARCIA Joint Inspection NOT Required

7. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]
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12. If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 2201]
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14. Permittee shall maintain the following records: (1) the date and time of O₂ and NO_x measurements, (2) the O₂ concentration in percent and the measured NO_x concentration corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]
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16. {3465} Records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-273-55-0

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP.
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: KETTLEMAN NORTH DOME UNIT
KINGS COUNTY, CA

EQUIPMENT DESCRIPTION:

2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #19)

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 247 lb, 2nd quarter - 247 lb, 3rd quarter - 247 lb, and fourth quarter - 248 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
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Seyed Sadredin, Executive Director, APCO

DRAFT

Arnaud Marjolle, Director of Permit Services
C-273-55-0 Jun 21 2018 7:36AM - GARCIAJ - Joint Inspection NOT Required

7. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]
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14. Permittee shall maintain the following records: (1) the date and time of O₂ and NO_x measurements, (2) the O₂ concentration in percent and the measured NO_x concentration corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]
15. Permittee shall maintain an accurate record of each location where this turbine is operated and the sulfur content (as H₂S) of the gas from each fuel source. [District Rule 2201]
16. {3465} Records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-273-56-0

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP.
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: KETTLEMAN NORTH DOME UNIT
KINGS COUNTY, CA

EQUIPMENT DESCRIPTION:

2.28 MMBTU/HR NATURAL GAS/FIELD GAS-FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR OPERATED AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE SAME STATIONARY SOURCE C-273 (CAPSTONE #20)

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 247 lb, 2nd quarter - 247 lb, 3rd quarter - 247 lb, and fourth quarter - 248 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
2. ERC Certificate Number S-1994-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. This micro turbine shall not operate closer than 804 meters from the property boundary. [District Rule 4102]
6. {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]

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

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Arnaud Marjolle, Director of Permit Services

C-273-56-0 Jun 21 2016 7:38AM - GARCIAJ - Joint Inspection NOT Required

7. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 15% O₂ (equivalent to 0.033 lb-NO_x/MMBtu); 0.0285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 40 ppmvd CO @ 15% O₂ (equivalent to 0.09 lb-CO/MMBtu); or 7 ppmvd VOC @ 15% O₂ (equivalent to 0.009 lb-VOC/MMBtu). [District Rules 2201 and 4201]
8. The turbine shall only burn produced gas and/or PUC quality gas with a fuel sulfur concentration not exceeding 10 grain/100 dscf. [District Rules 2201 and 4801]
9. Permittee shall measure and record fuel gas sulfur content (as H₂S) within 60 days of initial start-up, upon any change in the gas fuel source, and at least once every 12 months thereafter. [District Rule 2201]
10. Permittee shall determine sulfur content of gas consumed by the turbine using ASTM method D3246 or double GC for H₂S and mercaptans. [District Rule 2201]
11. Permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ within 60 days of initial start-up at each location and at least once every 12 months thereafter, using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. [District Rule 2201]
12. If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 2201]
13. All emission monitoring readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 2201]
14. Permittee shall maintain the following records: (1) the date and time of O₂ and NO_x measurements, (2) the O₂ concentration in percent and the measured NO_x concentration corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 2201]
15. Permittee shall maintain an accurate record of each location where this turbine is operated and the sulfur content (as H₂S) of the gas from each fuel source. [District Rule 2201]
16. {3465} Records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 2201]

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APPENDIX B

AP-42 Emission Factors

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION^a

Pollutant	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating
CO ₂ ^b	120,000	A
Lead	0.0005	D
N ₂ O (Uncontrolled)	2.2	E
N ₂ O (Controlled-low-NO _x burner)	0.64	E
→ PM (Total) ^c	7.6 ←	D
PM (Condensable) ^c	5.7	D
PM (Filterable) ^c	1.9	B
SO ₂ ^d	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

^b Based on approximately 100% conversion of fuel carbon to CO₂. CO₂[lb/10⁶ scf] = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO₂, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2x10⁴ lb/10⁶ scf.

^c All PM (total, condensable, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM₁₀, PM_{2.5} or PM₁ emissions. Total PM is the sum of the filterable PM and condensable PM. Condensable PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

^d Based on 100% conversion of fuel sulfur to SO₂. Assumes sulfur content is natural gas of 2,000 grains/10⁶ scf. The SO₂ emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO₂ emission factor by the ratio of the site-specific sulfur content (grains/10⁶ scf) to 2,000 grains/10⁶ scf.

APPENDIX C

Quarterly Net Emissions Change (QNEC)

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.4.9*

Last Update: 10/1/2002

Gas Turbine - < 3 MW, Uniform Load, With or Without Heat Recovery

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	5.0 ppmvd** @ 15% O ₂ , based on a three-hour average (Oxidation catalyst, or equal).		
SOx	PUC-regulated natural gas, LPG, or Non-PUC-regulated gas with < 0.75 grams S/100 dscf, or equal.		
PM10	Air inlet cooler/filter, lube oil vent coalescer (or equal) and either PUC-regulated natural gas, LPG, or non-PUC-regulated gas with < 0.75 grams S/100 dscf.		
NOx	9.0 ppmvd** @ 15% O ₂ , based on a three-hour average (high temp SCR, SCR, or equal).		
CO	10.0 ppmvd** @ 15% O ₂ , based on a three-hour average (Oxidation catalyst, or equal).		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Top-Down BACT Analysis for NOx Emissions:

Step 1 - Identify All Control Technologies

BACT Guideline 3.4.9 identifies the following control options for NOx emissions:

Achieved in Practice

- 9.0 ppmvd @ 15% O₂, based on a three-hours average.

Technologically Feasible/Alternate Basic Equipment

- None listed

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible to eliminate from Step 1.

Step 3 - Rank Remaining Control Options by Control Effectiveness

1. **Achieved in Practice:** 9.0 ppmvd @ 15% O₂, based on a three-hours average.

Step 4 - Cost Effectiveness Analysis

Since the applicant has proposed the most effective control technology listed in step 3 as, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT is satisfied with the following proposed option by the facility:

- **Achieved in Practice:** 9.0 ppmvd @ 15% O₂, based on a three-hours average.

APPENDIX E

HRA/AAQA Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Sajjad Ahmad – Permit Services
 From: Eddie Arredondo – Technical Services
 Date: June 1, 2018
 Facility Name: California Resources Production Corp.
 Location: Kettlemen North Dome Unit, Kings County
 Application #(s): C-273-52-0 thru 56-0
 Project #: C-1181625

A. RMR SUMMARY

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 52-0 thru 56-0 (Microturbines)	0.04	0.00	0.01	1.27E-07	No	Yes
Project Totals	0.04	0.00	0.01	1.27E-07		
Facility Totals	>1	0.19	0.02	6.44E-06		

Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 32-0 thru 46-0

1. The turbines must stay at least 804 meters from the nearest receptor as well as the facility boundary.
2. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

B. RMR REPORT

I. Project Description

Technical Services received a request on May 18, 2018, to perform a Risk Management Review for a proposed installation of five (5) 2.28 MMBtu/hr-each natural gas/field gas-fired Capstone Model C200 Micro Turbines each powering a 200 kW electrical generator.

II. Analysis

Toxic emissions for this proposed unit were calculated using Natural Gas Fired Turbine emission factors based on AP-42 Chapter 3.1 Stationary Gas Turbines (for turbines w/o catalyst). These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2007-2011 from Kettlemen to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 52-0 thru 56-0 (Turbines)			
Source Type	Point	Location Type	Rural
Stack Height (m)	4.06	Closest Receptor (m)	804
Stack Diameter. (m)	0.30	Type of Receptor	Residential
Stack Exit Velocity (m/s)	0.25	Max Hours per Year	8760
Stack Exit Temp. (°K)	552.50	Fuel Type	NG
Fuel Usage (mmscf/hr)	0.00228	Fuel Usage (mmscf/yr)	19.9728

Technical Services performed modeling for criteria pollutants CO, NO_x, SO_x, and PM₁₀ with the emission rates below:

Unit #	NO_x (Lbs.)		SO_x (Lbs.)		CO (Lbs.)		PM₁₀ (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
52-0 thru 56-0 (EACH)	0.08	659	0.06	569	0.21	1,798	0.02	152

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

	Background Site	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Tranquility (2016)	Pass	X	Pass	X	X
NO _x	Hanford -Irwin (2016)	Pass ¹	X	X	X	Pass
SO _x	Fresno – Garland (2016)	Pass	Pass	X	Pass	Pass
PM ₁₀	Corcoran-Patterson (2016)	X	X	X	Pass ²	Pass ²
PM _{2.5}	Corcoran-Patterson (2016)	X	X	X	Pass ³	Pass ³

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

³The court has vacated EPA's PM_{2.5} SILs. Until such time as new SIL values are approved, the District will use the corresponding PM₁₀ SILs for both PM₁₀ and PM_{2.5} analyses.

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. Facility Summary

APPENDIX F

Compliance Certification



January 26, 2018

San Joaquin Valley Air Pollution Control District
Attn: Leonard Scandura
Permit Services Manager
34969 Flyover Ct
Bakersfield, CA 93308

Subject: California Resources Production Corporation - Certification of Compliance

Dear Mr. Scandura:

Rule 2201 section 4.15.2 requires that an owner or operator proposing a federal major modification certify that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California are either in compliance or on a schedule for compliance with all applicable emission limitations and standards. This letter certifies compliance for California Resources Production Corporation (CRPC) and its affiliates.

CRPC has Notices of Violation outstanding issued by your office. However, all issues associated with the Notices of Violation have been addressed. Affiliated companies of CRPC own interests in or own and/or operate other major stationary sources in California. These major stationary sources are currently in compliance with applicable compliance schedules (if any) and substantially comply with all applicable laws and regulations.

This certification is made on information and belief and is based upon a review of CRPC and affiliated company major stationary sources in the State of California by employees of CRPC and its affiliates who have responsibility for compliance with environmental requirements.

This certification is as of the date of its execution.

Sincerely,



Jim Robinson
VP, HSE

cc: Raymond Rodriguez, Environmental Manager-North CRC