



AUG - 7 2018

Mr. Juan Campos
California Resources Production Corp
11109 River Run Blvd
Bakersfield CA 93309

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
Facility Number: S-8282
Project Number: S-1182220

Dear Mr. Campos:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The Authorities to Construct authorize the installation of two micro turbines.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authorities to Construct with Certificates of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,



Arnaud Marjollet
Director of Permit Services

Enclosures

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

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II. Applicable Rules

Rule 2020	Exemptions (12/18/14)
Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
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 4703	Stationary Gas Turbines (9/20/07)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The equipment will be operated at various unspecified locations within CRC's Light Oil Western Stationary Source in Kern County. The equipment will be restricted from operating within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

VPC operates various equipment throughout their Light Oil Western Stationary Source in remote areas where it is not feasible to connect to grid power. The proposed micro turbine generators are portable units that can be fired on PUC quality gas or field gas as needed. These units will be used to provide power to these remote facilities.

V. Equipment Listing

- S-8282-205-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE LIGHT OIL WESTERN STATIONARY SOURCE
- S-8282-206-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE LIGHT OIL WESTERN STATIONARY SOURCE

VI. Emission Control Technology Evaluation

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

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 emit NO_x at 9.0 ppmvd @ 15% O₂ (meeting BACT and Rule 4703 Tier 3 NO_x emissions limit for units less than 3 MW fired on gaseous fuel, though the unit is exempt from this rule as discussed in the Rule 4703 compliance section).

VII. General Calculations

A. Assumptions

- Natural gas F factor is 8,578 dscf/MMBtu (EPA 40 CFR 60 Appendix B Method 19)
- Higher heating value of natural gas is 1,000 Btu/scf (APR 1720)
- Facility operates 24 hours per day (per applicant)
- Fugitive VOCs emitted from components in gas service are considered negligible when compared to the products of combustion (District practice)
- Thermal efficiency of the engine is ≈ 35% (District practice)

B. Emission Factors

Emission Factors			
Pollutant	ppm	EF	Source
NO _x	9 ppm @ 15% O ₂	0.11 g/hp-hr	Similar Unit S-8282-124
SO _x		0.00285 lb/MMbtu	1 grain/100 dscf
PM ₁₀		0.0066 lb/MMBtu	AP-42 Table 3.1-2a
CO	19 ppm @ 15% O ₂	0.14 g/hp-hr	Similar Unit S-8282-124
VOC	5 ppm @ 15% O ₂	0.02 g/hp-hr	Similar Unit S-8282-124

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

The micro turbine power output is converted from 200 kW (given by the manufacturer) to horsepower using a factor of 1.341 hp/kW resulting in each turbine having a maximum rating of 268 hp.

The potential to emit for each turbine is calculated as follows, and summarized in the table below:

$$PE2 = EF \text{ (lb/MMBtu)} * 2.28 \text{ (MMBtu/hr)} * 24 \text{ (hr/day)} \text{ or } 8,760 \text{ (hr/year)}; \text{ or,}$$

$$= EF \text{ (g/hp-hr)} * 268 \text{ (hp)} * (1 \text{ lb}/453.59 \text{ g}) * 24 \text{ (hr/day)} \text{ or } 8,760 \text{ (hr/year)}$$

Post-Project Potential to Emit (PE2) (Each turbine)		
Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	1.6	569
SO _x	0.2	57
PM ₁₀	0.4	132
CO	2.0	725
VOC	0.3	104

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 (lb/year)¹					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	587,458	79,485	96,798	5,496,098	1,163,690

¹SSPE calculated in project S-1180276

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.

SSPE2 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	587,458	79,485	96,798	5,496,098	1,163,690
S-8282-205-0	569	57	132	725	104
S-8282-206-0	569	57	132	725	104
SSPE2	588,596	79,599	97,062	549,7548	1,163,898

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	587,458	79,485	96,798	96,798	5,496,098	1,163,690
SSPE2	588,596	79,599	97,062	97,062	5,497,548	1,163,898
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes	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, CO, and VOC; however, it is not a Major Source for SO_x, PM₁₀, or PM_{2.5} 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	VOC	SO ₂	CO	PM	PM ₁₀
Estimated Facility PE before Project Increase	293	582	40	2,748	48	48
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	Y	Y	N	Y	N	N

As shown above, the facility is an existing PSD major source for at least one pollutant.

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 unit, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

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

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.

Per District Policy, APR 1130, Increases in Maximum Daily Permitted Emissions of Less than or Equal to 0.5 lb/day, a daily increase in 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, for the purposes of determining whether New and Modified Source Review (NSR) rule requirements are triggered. Therefore, emissions of VOC are equal to 0 lb/year.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	1,138	50,000	No
VOC	0	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.

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 compared to the Federal Major Modification Thresholds in the following table.

Per District Policy, APR 1130, Increases in Maximum Daily Permitted Emissions of Less than or Equal to 0.5 lb/day, a daily increase in 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, for the purposes of determining whether New and Modified Source Review (NSR) rule requirements are triggered. Therefore, emissions of SO_x, PM₁₀, PM_{2.5} and VOC are equal to 0 lb/year.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO _x *	1138	0	Yes
VOC*	0	0	No
PM ₁₀	0	30,000	No
PM _{2.5}	0	20,000	No
SO _x	0	80,000	No

*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)
S-8282-205-0	0	569	569
S-8282-206-0	0	569	569
Net Emission Change (lb/year):			1138
Federal Offset Quantity: (NEC * 1.5)			1707

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

Per District Policy, APR 1130, Increases in Maximum Daily Permitted Emissions of Less than or Equal to 0.5 lb/day, a daily increase in 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, for the purposes of determining whether New and Modified Source Review (NSR) rule requirements are triggered. Therefore, emissions of SO_x, PM₁₀, and PM are equal to 0 lb/year.

I. Project Location Relative to Class 1 Area

“PSD Major Source Determination” Section above, the facility was determined to be a existing PSD Major Source. Because the project is not located within 10 km (6.2 miles)

of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Project Emission Increase – Significance Determination

a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no further PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO₂	SO₂	CO	PM	PM₁₀
Total PE from New and Modified Units	1	0	1	0	0
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	N	N	N	N	N

As demonstrated above, because the post-project total potentials to emit from all new and modified emission units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 and no further discussion 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 E.

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 Adjusted Increase in Permitted Emissions (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 two microturbines with a PE less than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC; therefore, BACT is not triggered.

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 <3 MW, uniform load, with or without heat recovery (See Appendix A).

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 B**), BACT has been satisfied with the following:

NOx: 9.0 ppmvd @ 15% O2 based on a three-hour average

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	>20,000	>54,750	>29,200	>200,000	>20,000
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for all the pollutants; therefore offset calculations are necessary and offsets will be required for this project.

However, per District Policy, APR 1130, Increases in Maximum Daily Permitted Emissions of Less than or Equal to 0.5 lb/day, a daily increase in 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, for the purposes of determining whether New and Modified Source Review (NSR) rule requirements are triggered. Therefore, emissions of SO_x, PM₁₀, and VOC are equal to 0 lb/year and offset calculations are not required for these pollutants.

Section 4.6.1 of Rule 2201 states emission offsets shall not be required for increases in carbon monoxide in attainment areas if the applicant demonstrates to the satisfaction of the APCO, that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards (see Appendix C). Therefore, CO offsets are not required for this project.

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.

Offsets Required (lb/year) = $(\Sigma[PE_2 - BE] + ICCE) \times DOR$, 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 (1.5 for Federal Major Modification)

BE = 0 lb/year for new emissions units

Offsets can be determined as follows:

Offsets Required (lb/year) = $(\Sigma[PE_2 - BE] + ICCE) \times DOR$

For each Unit:

PE₂ (NO_x) = 569 lb/year

BE (NO_x) = 0 lb/year

ICCE = 0 lb/year

Offsets Required by unit (lb/year) = $([569 - 0] + [569-0] + 0) \times 1.5$
= 1707 lb NO_x/year

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

Quarterly offsets required (lb/qtr) = $(1707 \text{ lb NO}_x/\text{year}) \div (4 \text{ quarters/year})$
= 427 lb/qtr

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

Quarterly offsets required (lb/qtr) = $(427 \text{ lb/qtr lb NO}_x/\text{year}) \div (2 \text{ units})$
= 213.5 lb/qtr

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 $X \div 4 = Y.z$)				
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 unit emissions to be offset are as follows:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>Total Annual</u>
213	213	214	214	854

The appropriate quarterly project emissions to be offset are as follows:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>Total Annual</u>
426	426	428	428	1708

The applicant has stated that the facility plans to use ERC certificate S-4361-2 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-4361-2	1476	1476	1476	1476

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

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 SSIPE 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.7, this project does not constitute an SB 288 Major Modification; therefore, public noticing for SB 288 Major Modification purposes is not required.

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 SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	587,458	588,596	20,000 lb/year	No
SO _x	79,485	79,599	54,750 lb/year	No
PM ₁₀	96,798	97,062	29,200 lb/year	No
CO	5,496,098	549,7548	200,000 lb/year	No
VOC	1,163,690	1,163,898	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not 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	588,596	587,458	1,138	20,000 lb/year	No
SO _x	79,599	79,485	114	20,000 lb/year	No
PM ₁₀	97,062	96,798	264	20,000 lb/year	No
CO	549,7548	5,496,098	1,450	20,000 lb/year	No
VOC	1,163,898	1,163,690	208	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

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modifications is required for this project.

2. Public Notice Action

As discussed above, public noticing is required for this project Federal Major Modification and Title V Significant Permit modification. Therefore, public notice documents will be

submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

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 permit 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

- Emission rates from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 9.0 ppmvd @ 15% O₂; VOC - 5 ppmvd @ 15% O₂; CO - 19 ppmvd @ 15% O₂; or PM₁₀ - 0.0066 lb/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 1.0 gr/100 dscf. [District Rules 2201 and 4801]

E. Compliance Assurance

1. Source Testing

Per APR 1705, since the margin of compliance for these turbines is low (manufacturer guarantee for NO_x is the same as what BACT Guideline 3.4.9 requires) initial and annual testing of NO_x, CO, and O₂ concentrations using a portable emission monitor will be required.

The following conditions will be listed on the permits to ensure compliance:

- The 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]

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

- Permittee shall measure and record fuel gas sulfur content (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]

2. Monitoring

The applicant will be required to perform annual monitoring of NO_x, CO, and O₂ Emissions Concentrations as discussed in the source testing section previously.

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 permits to ensure compliance:

- The permittee shall maintain records of: (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 (H₂S) of the gas from each fuel source. [District Rules 1070 and 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 C** 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 project constitutes a Federal Major Modification, therefore this requirement is applicable. CRPC's compliance certification is included in Appendix D.

H. Alternate Siting Analysis

The micro turbines will be operated at various unspecified sites where electrical power is needed but not available for exploration activities.

Since the project will provide electricity to be used at the same location, 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 subject to this Rule, and has received their Title V Operating Permit. A significant permit modification is defined as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

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 (LHV) at peak load equal to or greater than 10 MMBtu/hr (§ 60.330(a)). These turbines have 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 (HHV) at peak load equal to or greater than 10 MMBtu/hr (§ 60.4305(a)). These turbines have 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 YYYY applies to stationary gas turbines at major HAP sources with a rated peak power greater than 1.0 MW (§ 63.6090(b)(3)). These turbines have a maximum peak power rating of 0.200 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 the turbines are fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity.

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.

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 C**), 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 below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
Unit 205-0 (NG Fired Micro Turbines)	0.0703 per million	No
Unit 206-0 (NG Fired Micro Turbines)	0.0703 per million	No

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 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.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 20 in a million). As outlined by the HRA Summary in Appendix C of this report, the emissions increases for this project was determined to be less than significant.

The following conditions will be placed on the permit to ensure compliance:

1. 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.
2. Units shall be operated at least 1000 feet from any receptor.

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.

$$0.0066 \frac{lb}{10^6 Btu} \times \frac{453.6 g}{1 lb} \times \frac{10^6 Btu}{8,578 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.0019 \frac{grain}{dscf}$$

Since 0.0019 grain/dscf is less than 0.1 grain/dscf, compliance with this rule is expected.

The following condition will be listed on the permits to ensure compliance:

- Emission rates from this unit shall not exceed any of the following limits: NOx (as NO2) – 9.0 ppmvd @ 15% O2; VOC - 5 ppmvd @ 15% O2; CO - 19 ppmvd @ 15% O2; or PM10 - 0.0066 lb/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".

Turbines do not meet the definition of Fuel Burning Equipment as a turbine produces power due to mechanical means via expanding products of combustion exhausting through the turbine blades.

Therefore, the requirements of this rule do not apply to this project.

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.

The turbines in this project are rated at 0.200 MW and have a maximum heat input rating of 2,228,000 Btu/hr. Therefore, this rule does not apply.

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.

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

$$n = \text{moles SO}_2$$

$$T (\text{standard temperature}) = 60^\circ \text{F or } 520^\circ \text{R}$$

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

$$0.00285 \frac{\text{lb} \cdot \text{SO}_2}{\text{MMBtu}} \times \frac{1 \text{ MMBtu}}{8,710 \text{ scf}_{\text{exhaust}}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb} \cdot \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ \text{R}} \times \frac{520^\circ \text{R}}{14.7 \text{ psi}} \times 1,000,000 \text{ ppm} = 1.9 \text{ ppmv}$$

Since 1.9 ppmv is \leq 2000 ppmv, the turbines are expected to comply with Rule 4801.

The following condition will ensure compliance:

- The turbine shall only burn produced gas and/or PUC quality gas with a fuel sulfur concentration not exceeding 1.0 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

Oil and gas operations in Kern County must comply with the *Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting*. In 2015, Kern County revised the Kern County Zoning Ordinance Focused on Oil and Gas Activities (Kern Oil and Gas Zoning Ordinance) in regards to future oil and gas exploration, and drilling and production of hydrocarbon resource projects occurring within Kern County.

Kern County served as lead agency for the revision to their ordinance under the California Environmental Quality Act (CEQA), and prepared an Environmental Impact Report (EIR) that was certified on November 9, 2015. The EIR evaluated and disclosed to the public the environmental impacts associated with the growth of oil and gas exploration in Kern County, and determined that such growth will result in significant GHG impacts in the San Joaquin Valley. As such, the EIR included mitigation measures for GHG.

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating GHGs. The District has determined that the applicant is responsible for implementing GHG mitigation measures imposed in the EIR by the Kern County for the Kern County Zoning Ordinance.

District CEQA Findings

The proposed project is located in Kern County and is thus subject to the Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting. The Kern County Zoning Ordinance was developed by the Kern County Planning Agency as a comprehensive set of goals, objectives, policies, and standards to guide development, expansion, and operation of oil and gas exploration within Kern County.

In 2015, Kern County revised their *Kern County Zoning Ordinance* in regards to exploration, drilling and production of hydrocarbon resources projects. Kern County, as the lead agency, is the agency that will enforce the mitigation measures identified the EIR, including the mitigation requirements of the Oil and Gas ERA. As a responsible agency the District complies with CEQA by considering the EIR prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project involved (CCR §15096). The District has reviewed the EIR prepared by Kern County, the Lead Agency for the project, and finds it to be adequate. The District also prepared a full findings document. The full findings document, *California Environmental Quality Act (CEQA) Statement of Findings for the Kern County Zoning Ordinance EIR* contains the details of the District's findings regarding the Project. The District's implementation of the Kern Zoning Ordinance and its EIR applies to ATC applications received for any new/modified equipment used in oil/gas production in Kern County, including new wells. The full findings applies to the Project and the Project's related activity equipment(s) is covered under the Kern Zoning Ordinance. To reduce project related impacts on air quality, the District evaluates emission controls for the project such as Best Available Control Technology (BACT) under District Rule 2201 (New and Modified Stationary Source Review). In addition, the District is requiring the applicant to surrender emission reduction credits (ERC) for stationary source emissions above the offset threshold.

Thus, the District concludes that through a combination of project design elements, permit conditions, and the Oil and Gas ERA, the project will be fully mitigated to result in no net increase in emissions. Pursuant to CCR §15096, prior to project approval and issuance of ATCs the District prepared findings.

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 revision to the *Kern County Zoning Ordinance* went through an extensive public process that included a Notice of Preparation, a preparation of an EIR, scoping meetings, and public hearings. The process led to the certification of the final EIR and approval of the revised *Kern County Zoning Ordinance* in November 2015 by the Kern County Board of Supervisors. As mentioned above, the proposed project will be fully mitigated and will result in no net increase in emissions. In addition, the proposed project is not located at a facility of concern; 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. Issue ATCS S-8282-205-0 and '206-0 subject to the permit conditions on the attached draft ATC in **Appendix F**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-8282-205-0	3020-08A-A	200 kW	\$298
S-8282-206-0	3020-08A-A	200 kW	\$298

Appendixes

- A: BACT Guideline
- B: BACT Analysis
- C: HRA/AAQA Summary
- D: Compliance Certification
- E: QNEC
- F: Draft ATC S-8282-205-0 and '206-0

APPENDIX A
BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.4.9*

Last Update: 10/01/2002

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**