San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 12 2018

Mr. Juan Campos
California Resources Production Corp.
111009 River Run Blvd.
Bakersfield, CA 93309

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
Facility Number: S-8282
Project Number: S-1183422

Dear Mr. Campos:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The permit is for a micro turbine.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authority to Construct with a Certificate 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 Authority 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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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review

Facility Name:	California Resources Production Corp.	Date:	9/5/18
Mailing Address:	111009 River Run Blvd. Bakersfield, CA 93309	Engineer:	David Torii
		Lead Engineer:	Rich Karrs
Contact Person:	Juan Campos		
Telephone:	661-529-4370		
Application #(s):	S-8282-210-0		
Project #:	1183422		
Deemed Complete:	9/1/18		

I. Proposal

California Resources Production Corp. (CRPC) has requested an Authority to Construct (ATC) permit for the installation of a 200 kW (2.28 MMBtu/hr) natural gas and field gas Capstone model C200 micro turbine.

Pursuant to District Rule 2020 section 6.1.3, gas turbine engines with a maximum heat input rating of 3 MMBtu/hr or less are exempt from permit. However, the California Code of Regulations (CCR) Title 17 sections 94200 - 94214 requires that units used in distributed generation either be certified CARB, or be subject to District permit requirements regardless of their rating (§94201).

Executive order DG-035 was issued for this micro turbine and certified emissions while firing on "natural gas", which CCR Title 17 §94202(u) defines as: California Public Utility Commission quality natural gas.

Since CRPC is proposing to fire this unit on non PUC quality gas, the executive order is no longer valid and the micro turbine will require a District Permit to Operate.

This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). The facility has requested that this project be processed in that manner. Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. CRPC must apply to administratively amend their Title V permit,

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
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 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 authorized to operate at various unspecified locations within the Buena Vista Nose Lease within Township 32S, Range 25E (see Appendix B) in CRPC's Light Oil Western stationary source. The equipment will not be located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

CRPC operates various equipment in remote areas throughout their Light Oil Western stationary source where it is not feasible to connect to grid power. The proposed micro turbine generator is a portable unit that can be fired on PUC quality gas or field gas as needed. This unit will be used to provide electricity to these remote facilities.

V. Equipment Listing

S-8282-210-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR (VARIOUS UNSPECIFIED LOCATIONS IN THE BUENA VISTA NOSE LEASE)

VI. Emission Control Technology Evaluation

Emissions from the gas-fired micro turbine include NOx, CO, VOC, PM10, and SOx.

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

The micro turbine will emit NOx at 9.0 ppmvd @ 15% 02 (meeting BACT and Rule 4703 Tier 3 NOx 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

- EPA F-factor (adjusted to 60" F): 8,578 dscf/MMBtu (40 CFR Appendix B)
- Fuel Heating Value: 1 ,000 Btu/scf (District Policy APR 1720) .

- Facility operates 24 hours per day
- Thermal Efficiency of turbine: 35% (District practice)
- 1.341 hp/kW
- Power output: 200kW (given by the manufacturer)
- Maximum hp rating: 200 kW x 1.341 hp/kW = 268 hp.

B. Emission Factors

Emission Factors				
Pollutant	ppmvd @ 15% O_2	g/hp-hr	lb/MMBtu	Source
NOx	9	0.11[1]	-	BACT Limit
SOx	-	-	0.00285[2]	Mass Balance
PM_{10}	-	-	0.0066	AP-42 Table 3.1-2a
CO	19	0.07[3]	-	Proposed
VOC	5	0.02[4]	-	Proposed

1) $\frac{9\ parts \cdot NO_x}{10^6\ parts}\left(\frac{8{,}578\ dscf}{MMBtu}\right)\frac{46\ lb}{lb \cdot mol}\left(\frac{20.9}{20.9-15}\right)\frac{1\ lb \cdot mol}{379.5\ dscf}\left(\frac{MMBtu}{393.24\ bhp \cdot hr}\right)\frac{453.59\ g}{lb}\left(\frac{1}{0.35}\right) = 0.108\left(\frac{g \cdot NO_x}{hp \cdot hr}\right)$

2) (1.0 gr/100 scf)(1 scf/1000 Btu)(1 lb/7000 gr)(2 lb SO_2/1 lb S)(10^6/MM) = 0.00285 lb SOx/MMbtu

3) $\frac{19\ parts \cdot CO}{10^6\ parts}\left(\frac{8{,}578\ dscf}{MMBtu}\right)\frac{28\ lb}{lb \cdot mol}\left(\frac{20.9}{20.9-15}\right)\frac{1\ lb \cdot mol}{379.5\ dscf}\left(\frac{MMBtu}{393.24\ bhp \cdot hr}\right)\frac{453.59\ g}{lb}\left(\frac{1}{0.35}\right) = 0.14\left(\frac{g \cdot CO}{hp \cdot hr}\right)$

4) $\frac{5\ parts \cdot VOC}{10^6\ parts}\left(\frac{8{,}578\ dscf}{MMBtu}\right)\frac{16\ lb}{lb \cdot mol}\left(\frac{20.9}{20.9-15}\right)\frac{1\ lb \cdot mol}{379.5\ dscf}\left(\frac{MMBtu}{393.24\ bhp \cdot hr}\right)\frac{453.59\ g}{lb}\left(\frac{1}{0.35}\right) = 0.021\left(\frac{g \cdot VOC}{hp \cdot hr}\right)$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

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

PE2 = EF (lb/MMBtu) * 2.28 (MMBtu/hr) * 24 (hr/day) or 8,760 (hr/year); or,
= EF (g/hp-hr) * 268 (hp) * (1 lb/453.59 g) * 24 (hr/day) or 8,760 (hr/year)

Post-Project Potential to Emit (PE2) (Each turbine)		
Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NOx	1.6	569
SOx	0.2	57
PM_{10}	0.4	132
CO	1.0	352
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.

Facility emissions are already above the Offset and Major Source Thresholds for all pollutants; therefore, SSPE1 calculations are not necessary.

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.

Facility emissions are already above the Offset and Major Source Thresholds for all pollutants; therefore, SSPE2 calculations are not necessary.

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

This source is an existing Major Source for al pollutants and will remain so.

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				>250		
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)				y		

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

7. SB 288 Major Modification

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

Since this facility is a major source for all pollutants, 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	569	50,000	N
SO_x	57	80,000	N
PM_{10}	132	30,000	N
VOC	104	50,000	N

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.

For existing emissions units, the increase in emissions is calculated as follows.

Emission Increase = PAE – BAE - UBC

Where: PAE = Projected Actual Emissions, and
BAE = Baseline Actual Emissions
UBC = Unused baseline capacity

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

Note that any increases of less than 0.5 lb/day (annual emissions÷365) round to zero for NSR purposes.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	**Total Emissions Increases (lb/yr)**	**Thresholds (lb/yr)**	**Federal Major Modification?**
NO_x*	569	0	Y
VOC*	0	0	N
PM_{10}	132	30,000	N
$PM_{2.5}$	132	20,000	N
SO_x	0	80,000	N

*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 multiplied by 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-8282-210-0	0	569	569
		Net Emission Change (lb/year):	569
		Federal Offset Quantity: (NEC * 1.5)	854

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)

As demonstrated in the "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.

I. 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 futher PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO_2	SO_2	CO	PM	PM_{10}
Total PE from New and Modified Units	0	0	0	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 A.

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 a new natural gas fired turbine engine with a PE less than 2 lb/day for NO_x, SO_x, PM_{10}, CO, and VOC. Therefore BACT for new units with PE > 2 lb/day purposes 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 Sections VII.C.7 and VII.C.8 above, this project does constitute 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 C).

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 C), BACT has been satisfied with the following:

NO_x: 9.0 ppmvd @ 15% O_2 based on a three-hour average

B. Offsets

Offset requirements shall be triggered on a pollutant by 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?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for all pollutants. Therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year 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) = (Σ[PE2 – BE] + ICCE) x 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

Pursuant to Policy APR 1130, offsets will not be required for this project since the increase in permitted emissions of SOx, PM10 and VOC are each less than or equal to 0.5 lb/day and is therefore rounded to zero for the purposes of triggering NSR requirements. However, to minimize future rounding errors, the figures are presented in the EE and in the permit without rounding the daily increase in emissions to zero.

Section 4.6.1 of Rule 2201 states that emissions offsets are not required for increases in carbon monoxide in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality (AAQ) Standards are not violated in the areas to be affected, such emissions will be consistent with Reasonable Further

Progress, and will not cause or contribute to a violation of AAQ Standards. The District performed an AAQ Analysis and determined that this project will not result in or contribute to a violation of an AAQ Standard for CO (see Appendix D). Therefore, CO offsets are not required for this project.

The facility is proposing to install a new emissions unit; therefore BE = 0. Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR

PE2 (NO_x) = 569 lb/year
BE (NO_x) = 0 lb/year
ICCE = 0 lb/year

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

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

Offsets Required (lb/year) = ([569 – 0] + 0) x 1.5
= 569 x 1.5
= 854 lb NOx/year

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

Quarterly offsets required (lb/qtr) = (854 lb NOx/year) ÷ (4 quarters/year)
= 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 ÷ 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	213	213	214	214
.75	Y	Y+1	Y+1	Y+1

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
213	213	214	214	854

The applicant has stated that the facility plans to use ERC certificate S-4484-2 to offset the increases in NOx emissions associated with this project. The certificate has available quarterly NOx credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-4484-2	860	860	860	861

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

Proposed Rule 2201 (offset) Conditions:

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter – 213 lb, 2nd quarter – 213 lb, 3rd quarter – 214 lb, and 4th quarter – 214 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-4484-2 (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 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 and VII.C.8, this project is 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	>20,000	>20,000	20,000 lb/year	No
SO_X	>54,750	>54,750	54,750 lb/year	No
PM_{10}	>29,200	>29,200	29,200 lb/year	No
CO	>200,000	>200,000	200,000 lb/year	No
VOC	>20,000	>20,000	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	**SSIPE (lb/year)**	**SSIPE Public Notice Threshold**	**Public Notice Required?**
NO_X	569	20,000 lb/year	No
SO_X	57	20,000 lb/year	No
PM_{10}	132	20,000 lb/year	No
CO	352	20,000 lb/year	No
VOC	104	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 for triggering a Federal Major Modification and a Title V significant 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 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: 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] Y

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] Y

E. Compliance Assurance

1. Source Testing

Per APR 1705, since the margin of compliance for the turbine is low (manufacturer guarantee for NOx is the same as what BACT Guideline 3.4.9 requires) initial and annual testing of NO_X, CO, and O_2 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 NOx, 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 NOx 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 O_2 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 NOx measurements, (2) the O2 concentration in percent and the measured NOx 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 D** 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 PM_{10} 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 PM_{10} 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. CRPC's compliance certification is included in Appendix E.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a gas turbine.

Since the project will provide power to be used at the same location, the existing site 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."

Minor permit modifications are not Title I modifications as defined in this rule. This project triggers a Federal Major Modification, as a result, the proposed project constitutes a Significant Modification to the Title V Permit.

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)). The turbine has a maximum heat input of 2.28 MMBtu/hr; therefore the requirements of Subpart GG are not applicable to the turbine.

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)). The turbine has a maximum heat input of 2.28 MMBtu/hr; therefore the requirements of Subpart KKKK are not applicable to the turbine.

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)). The turbine has 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 turbine is 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 D**), 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:

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
210-0 (NG Micro Turbine)	0.00	0.00	0.00	2.13E-09	No	Yes
Project Totals	0.00	0.00	0.00	2.13E-09		
Facility Totals	>1	0.89[1]	0.04[1]	16.7E-06[1]		

Notes:
1. Facility total is from Oxy Risk Light Oil Western Stationary Source Workbook

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.

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.

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

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 turbine in this project is rated at 0.200 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 (SO_2), on a dry basis averaged over 15 consecutive minutes.

Volume SO_2 = nRT/P
n = moles SO_2
T (standard temperature) = 60 °F or 520 °R

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

$$0.00285 \quad \frac{lb \cdot SO_2}{MMBtu} \times \frac{1 MMBtu}{8{,}710\, scf_{exhaust}} \times \frac{1\, lb \cdot mol}{64\, lb \cdot SO_2} \times \frac{10.73\, psi \cdot ft^3}{lb \cdot mol \cdot {}^\circ R} \times \frac{520^\circ R}{14.7\, psi} \times 1{,}000{,}000\, ppm = \quad 1.9 \quad \text{ppmv}$$

Since 1.9 ppmv is ≤ 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 0.75 gr/100 dscf. [District Rules 2201 and 4801]

California Health & Safety Code 42301.6 (School Notice)

The District has verified that the unit will not be 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. Pending a successful NSR Public Noticing period, issue the ATC 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-8282-210-0	3020-02 E	2.28 MMBtu/hr	$473

Appendixes

A: Quarterly Net Emissions Change
B: Operating Location
C: BACT Guideline and BACT Analysis
D: HRA Summary
E: Compliance Certification
F: Draft ATC

APPENDIX A
Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

1.

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

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

$PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year

$PE1_{quarterly}$= $PE1_{annual}$ ÷ 4 quarters/year

Quarterly NEC [QNEC]					
	PE2 (lb/yr)	PE2 (lb/qtr)	PE1 (lb/yr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO_X	569	142	0	0	142
SO_X	57	14	0	0	14
PM_{10}	132	33	0	0	33
CO	352	88	0	0	88
VOC	104	26	0	0	26

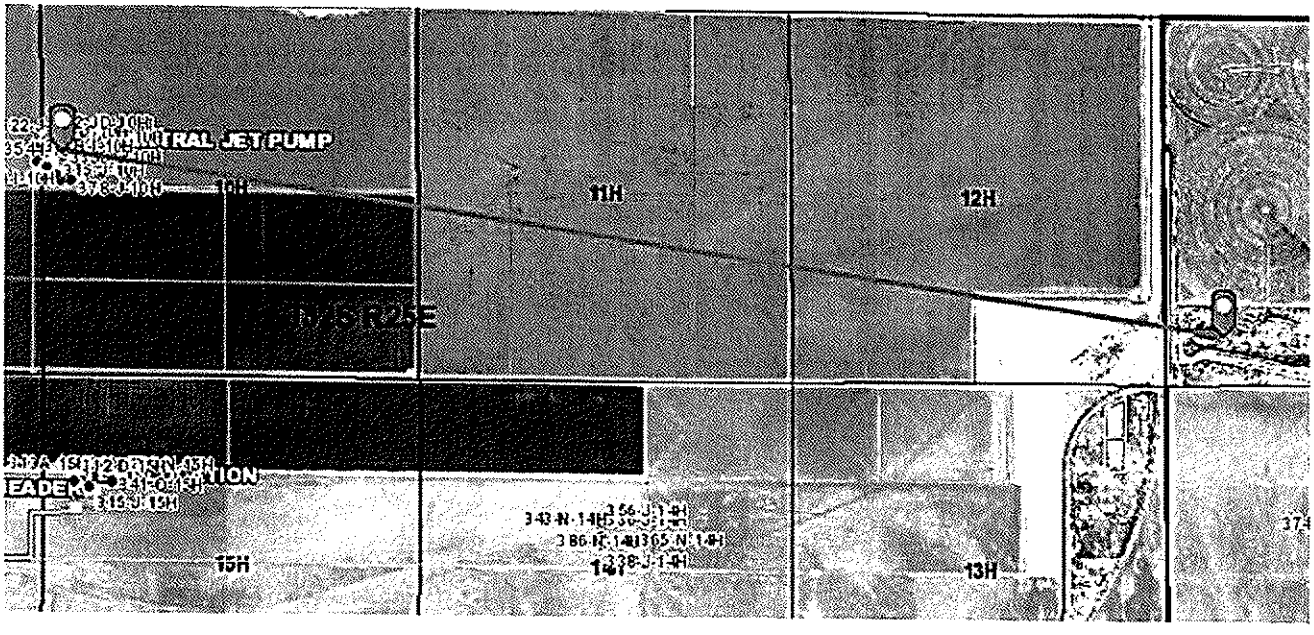
APPENDIX B
Operating Location

David Torii

From: Campos, Juan <Juan.Campos@crc.com>
Sent: Monday, August 27, 2018 2:44 PM
To: David Torii
Subject: Microturbine S1183422

Hi David:

Per our conversation, please permit the unit to operate anywhere in the BV Nose Lease, nearest receptor 14H Pad is ~9100 feet, or ~16400 feet to the 10H Pad.



-Please let me know if you need anything else,

Juan

APPENDIX C
BACT Guideline and BACT Analysis

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 in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	10.0 ppmvd** @ 15% O2, based on a three-hour average (Oxidation catalyst, or equal).		
NOx	9.0 ppmvd** @ 15% O2, based on a three-hour average (high temp SCR, SCR, 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.		
SOx	PUC-regulated natural gas, LPG, or Non-PUC-regulated gas with < 0.75 grams S/100 dscf, or equal.		
VOC	5.0 ppmvd** @ 15% O2, 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 s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is requried 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. For background information, see Permit Specific BACT Determinations on Details Page.

1. **BACT Analysis for NO_X Emissions:**

a. Step 1 - Identify all control technologies

The SJVAPCD BACT Clearinghouse guideline 3.4.9, identifies for achieved in practice BACT for NO_X emissions from gas turbines <3 MW, uniform load, with or without heat recovery as follows:

1) 9.0 ppmvd @ 15% O_2 based on a three-hour average (high temp SCR, SCR, or equivalent)

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) 9.0 ppmvd @ 15% O_2 based on a three-hour average (high temp SCR, SCR, or equivalent)

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. There are no technologically feasible options to eliminate; therefore, a cost effective analysis is not required.

e. Step 5 - Select BACT

BACT for NO_X emissions from the turbine is a NO_X limit of 9.0 ppmvd @ 15% O_2. The applicant has proposed to install a turbine with a NO_X limit of 9.0 ppmvd @ 15% O_2; therefore BACT for NO_X emissions is satisfied.

APPENDIX D
HRA Summary and AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review and Ambient Air Quality Analysis

To:	David Torii – Permit Services
From:	Will Worthley – Technical Services
Date:	August 29, 2018
Facility Name:	CALIFORNIA RESOURCES PRODUCTION CORP
Location:	LIGHT OIL WESTERN STATIONARY SOURCE, KERN COUNTY
Application #(s):	S-8282-210-0
Project #:	S-1183422

SUMMARY

RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
210-0 (NG Micro Turbine)	0.00	0.00	0.00	2.13E-09	No	Yes
Project Totals	0.00	0.00	0.00	2.13E-09		
Facility Totals	>1	0.89[1]	0.04[1]	16.7E-06[1]		

Notes:
2. Facility total is from Oxy Risk Light Oil Western Stationary Source Workbook

AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass		Pass		
NO_x	Pass				Pass
SO_x	Pass	Pass		Pass	Pass
PM10				Pass	Pass
PM2.5				Pass	Pass

Notes:
1. Results were taken from the attached AAQA Report.
2. The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted below.
3. Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 5 $\mu g/m^3$ for the 24-hour average concentration and 1 $\mu g/m^3$ for the annual concentration.
4. Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 1.2 $\mu g/m^3$ for the 24-hour average concentration and 0.2 $\mu g/m^3$ for the annual concentration.

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

Unit #210-0

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. This unit shall operate at least 815 meters from the nearest receptor and boundary.

3. This unit shall only be operated in the Buena Vista Nose Lease.

Project Description

Technical Services received a request on August 28, 2018 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -210-0: 2.28 MMBTU/HR NATURAL GAS/FIELD GAS FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR

RMR REPORT

Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices(Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion.

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, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 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 2013-2017 from Conner (rural dispersion coefficient selected) 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:

Source Process Rates

Unit ID	Process ID	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
210	1	Natural Gas	MMscf	0.002	20

Point Source Parameters

Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
210	NG Fired Micro Turbine	2.60	552	7.50	0.30	Vertical

AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO_2 standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

Monitoring Stations

Pollutant	Station Name	County	City	Measurement Year
CO	Bakersfield-Muni	Kern	Bakersfield	2016
NOx	Bakersfield-California Avenue	Kern	Bakersfield	2016
PM10	Bakersfield-California Avenue	Kern	Bakersfield	2016
PM2.5	Bakersfield-California Avenue	Kern	Bakersfield	2016
SOx	Fresno - Garland	Fresno	Fresno	2016

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)

Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
210	1	0.08	0.01	0.08	0.02	0.02

Emission Rates (lbs/year)

Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
210	1	659	057	701	132	132

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for 2013-2017 from Conner (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters

Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
210	NG Fired Micro Turbine	2.60	552	7.50	0.30	Vertical

Conclusion

RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this 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.

AAQA

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

APPENDIX E
Compliance Certification

CALIFORNIA
RESOURCES CORPORATION

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 an 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

APPENDIX F
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-8282-210-0

ISSUANCE DATE: DRAFT

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

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
2.28 MMBTU/HR NATURAL GAS/FIELD GAS FIRED CAPSTONE MODEL C200 MICRO TURBINE POWERING A 200 KW ELECTRICAL GENERATOR (VARIOUS UNSPECIFIED LOCATIONS IN THE BUENA VISTA NOSE LEASE)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 213 lb, 2nd quarter - 213 lb, 3rd quarter - 214 lb, and fourth quarter - 214 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] Federally Enforceable Through Title V Permit
4. ERC Certificate Number S-4484-2 (or certificates 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] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 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.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-8282-210-0 : Sep 7 2018 12:18PM -- TORID : Joint Inspection NOT Required

6. {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]
7. Turbine may be operated within the Buena Vista Nose lease only [District Rule 4102]
8. This unit shall not be operated within 815 meters of the nearest receptor or boundary. [District Rule 4102]
9. This unit shall not be operated within 1,000 feet of any K-12 school. [District Rule 4102]
10. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
11. 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] Federally Enforceable Through Title V Permit
12. 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] Federally Enforceable Through Title V Permit
13. 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] Federally Enforceable Through Title V Permit
14. 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] Federally Enforceable Through Title V Permit
15. 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] Federally Enforceable Through Title V Permit
16. The permittee shall monitor and record the stack concentration of NOx, 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] Federally Enforceable Through Title V Permit
17. If either the NOx 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] Federally Enforceable Through Title V Permit
18. All alternate monitoring parameter emission 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] Federally Enforceable Through Title V Permit
19. The permittee shall maintain records of: (1) the date and time of O2 and NOx measurements, (2) the O2 concentration in percent and the measured NOx 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] Federally Enforceable Through Title V Permit
20. 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] Federally Enforceable Through Title V Permit
21. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit