San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

July 7, 2023

Mr. Douglas Shaffer
California Resources Elk Hills, LLC
900 Old River Road
Bakersfield, CA 93311

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
Facility Number: S-2234
Project Number: S-1224723

Dear Mr. Shaffer:

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. California Resources Elk Hills, LLC proposes to install a 40 MMBtu/hr Crimson Energy CE-600 enclosed flare for VOC destruction.

The notice of preliminary decision for this project has been posted on the District's website (www.valleyair.org). 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 Mrs. Erin Scott, Permit Services Manager, at 661-392-5500.

Thank you for your cooperation in this matter.

Sincerely,

Erin Scott

Brian Clements
Director of Permit Services

Enclosures

cc: Courtney Graham, CARB (w/enclosure) via email
cc: Laura Yannayon, EPA (w/enclosure) via EPS

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Installation of Enclosed Ground-Level Flare for VOC Destruction

Facility Name:	California Resources Elk Hills, LLC	Date:	July 7, 2023
Mailing Address:	900 Old River Road Bakersfield, CA 93311	Engineer:	Adegoke Oba
		Lead Engineer:	Steven Davidson
Contact Person:	Douglas Shaffer		
Telephone:	661-429-5972		
E-Mail:	William.Shaffer@crc.com		
Application #(s):	S-2234-251-0		
Project #:	S1224723		
Deemed Complete:	January 9, 2023		

I. Proposal

California Resources Elk Hills, LLC (CREH) has requested an Authority to Construct (ATC) permit for the installation of a 40 MMBtu/hr Crimson Energy CE-600 enclosed flare to serve the Gas Treatment Unit #2 (GTU-2) as a VOC destruction device during compressor shutdowns or process unit upsets.

CREH received their Title V Permit on April 30, 1999. 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). 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. CREH must apply to administratively amend their Title V permit.

Draft ATC S-2234-251-0 is included in **Appendix A**.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4311	Flares (12/17/20)
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 located at CREH's Light Oil Western Stationary Source within the Elk Hills oilfield, NE 1/4 Sec. 35, T30S, R23E. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Currently, produced gas is routed through the Gas Treatment Unit #2 (GTU-2) for final filtration before entering the sales gas system. The applicant is proposing to install an enclosed ground-level flare as an additional alternative to the existing open flare (PTO S-2234-250) serving as a VOC destruction device during compressor shutdowns or process unit upsets. The existing open-flame flare will remain as a backup service device for flow conditions exceeding the capacity of the proposed unit.

The proposed flare will not be included in the current SLC conditions limiting gas input and emissions, which are shared between S-2234-250, '-8, '-14, '-204, '-205, and '-235. The project results in an increase in combustion emissions and fugitive VOC emissions from the additional components associated with the gas piping to the oxidizer.

The proposed flare will be equipped with a continuous pilot flame. The pilot flame is operated independently from the main flare flame. Due to the nature of its operation, the flare pilot will be considered a separate emissions unit from the main flare. Pilots can be exempt from permit requirements as a low emitting unit pursuant to Rule 2020 Section 6.19, provided emissions of each air contaminant from the pilot are less than or equal to 2.0 lb/day. Calculations on potential emissions from the pilot gas will be addressed below in the Calculations section.

V. Equipment Listing

S-2234-251-0: 40 MMBTU/HR CRIMSON ENERGY CE-600 ENCLOSED GROUND-LEVEL FLARE SERVING GAS TREATMENT UNIT #2 (GTU-2)

VI. Emission Control Technology Evaluation

Flares typically achieve greater than 98% destruction efficiency of VOCs. The proposed flare operates with a continuous propane pilot and is enclosed with smokeless operation.

VII. General Calculations

A. Assumptions

- 40 MMBtu/hr Flare is designed to operate up to 24 hours/day, 365 days/yr (350,400 MMBtu/yr)
- Pilot lights are designed to operate 24 hours/day, 365 days/yr, 0.058 MMBtu/hr (1,392 scf/day) – emissions will be neglected (see Section VII.C.)
- Gas HHV = 1000 Btu/scf
- Gas F-Factor = 8,578 dscf/MMBtu (corrected to 60 °F)
- Gas Sulfur content will be 1 gr /100 scf (Proposed by applicant)
- Fugitive VOC emissions are only from components in light crude oil and gas service.
- The percentage of VOC of the total hydrocarbons is 100%.
- To streamline emission calculations, PM2.5 emissions are assumed to be equal to PM10 emissions. Only if needed to determine if a project is a Federal major modification for PM2.5 will specific PM2.5 emission calculations be performed.

B. Emission Factors

Pilot Emission Factors		
Pollutant	**lb/MMBtu**	**Source**
NO_X	0.094	AP-42
*SO_X	0.00285	AP-42
PM_{10}	0.008	AP-42
CO	0.37	AP-42
VOC	0.0055	AP-42

Flare Emission Factors		
Pollutant	**lb/MMBtu**	**Source**
NO_X	0.018	Manufacturer's Guarantee
*SO_X	0.00285	Mass Balance Equation Below
PM_{10}	0.008	Manufacturer's Guarantee
CO	0.0076	Manufacturer's Guarantee
VOC	0.0027	Manufacturer's Guarantee

$$* \frac{1\ gr-S}{100\ scf} \times \frac{lb}{7000\ gr} \times \frac{scf}{1{,}000\ Btu} \times \frac{10^6 Btu}{MMBtu} \times \frac{64\ lb-SOx}{32\ lb-S} = 0.00285 \text{ lb/MMBtu}$$

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)

Pilot Flare Daily Emissions

NOx: 0.094 lb/MMBtu x 0.058 MMBtu/hr x 24 hrs = 0.1 lb/NOx/day
SOx: 0.00285 lb/MMBtu x 0.058 MMBtu/hr x 24 hrs = 0.004 lb SOx/day
PM10: 0.008 lb/MMBtu x 0.058 MMBtu/hr x 24 hrs = 0.01 lb PM10/day
CO: 0.37 lb/MMBtu x 0.058 MMBtu/hr x 24 hrs = 0.5 lb CO/day
VOC: 0.0055 lb/MMBtu x 0.058 MMBtu/hr x 24 hrs = 0.008 lb VOC/day

As shown above, pilot emissions are equal 0.5 lbs/day or less. Therefore, they will be considered negligible and will not be included in calculated emissions

Flare Daily Emissions

NOx: 0.018 lb/MMBtu x 40 MMBtu/hr x 24 hrs = 17.3 lb/NOx/day
SOx: 0.00285 lb/MMBtu x 40 MMBtu/hr x 24 hrs = 2.7 lb SOx/day
PM10: 0.008 lb/MMBtu x 40 MMBtu/hr x 24 hrs = 7.7 lb PM10/day
CO: 0.0076 lb/MMBtu x 40 MMBtu/hr x 24 hrs = 7.3 lb CO/day
VOC: 0.0027 lb/MMBtu x 40 MMBtu/hr x 24 hrs = 2.6 lb VOC/day

Flare Annual Emissions

NOx: 0.018 lb/MMBtu x 40 MMBtu/hr x 8,760 hrs = 6,307 lb/NOx/day
SOx: 0.00285 lb/MMBtu x 40 MMBtu/hr x 8,760 hrs = 999 lb SOx/day
PM10: 0.008 lb/MMBtu x 40 MMBtu/hr x 8,760 hrs = 2,803 lb PM10/day
CO: 0.008 lb/MMBtu x 40 MMBtu/hr x 8,760 hrs = 2,803 lb CO/day
VOC: 0.0027 lb/MMBtu x 40 MMBtu/hr x 8,760 hrs = 946 lb VOC/day

PE2		
Pollutant	**Daily Emissions (lb/day)**	**Annual Emissions (lb/year)**
NO_X	17.3	6,307
SO_X	2.7	999
PM_{10}	7.7	2,803
CO	7.3	2,803
VOC	2.6	946

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.

The SSPE1 is equivalent to the SSPE2 calculated in project S1203245 (all subsequent projects did not have any changes in emissions and thus did not have any changes to SSPE1 or SSPE2). It is presented in the following table.

SSPE1 (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	1,350,881	82,969	213,201	7,160,144	3,341,773

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.

The SSPE2 is calculated below and presented in the following table.

SSPE2 (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	1,350,881	82,969	213,201	7,160,144	3,341,773
S-2234-251-0	6,307	999	2,803	2,803	946
SSPE2	1,357,188	83,968	216,004	7,162,947	3,342,719

5. Major Source Determination

<u>Rule 2201 Major Source Determination:</u>

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), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

This source is an existing Major Source for NOx, PM_{10}, CO and VOC emissions and will remain a Major Source for these criteria pollutants. The source is not a major source for SOx and will not become a major source for SOx as a result of this project as the increase of emissions will not surpass the 140,000 lb/year threshold.

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	675	1,670	41	3,580	107	107
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	Yes	Yes	No	Yes	No	No

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

40 CFR Part 51.165 defines an SB 288 Major Modification 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 NOx, PM_{10}, CO, and VOC pollutants, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if further 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	6,307	50,000	No
PM_{10}	2,803	30,000	No
VOC	946	50,000	No

*Note that CO is not listed because the District is in attainment for CO.

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification and no further discussion is required.

8. Federal Major Modification / New Major Source

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.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is 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. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. In step 1, emission decreases cannot cancel out the increases. Step 2 allows consideration of the project's net emissions increase as described in 40 CFR 51.165 and the Federal Clean Air Act Section 182 (e), as applicable.

Step 1: Project Emissions Increase

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

Emission Increase = PE2

Project Emissions Increase

Per District Policy APR 1150, for purposes of determining if a new or modified emission unit is part of a Federal Major Modification, if the annual emission increase for the emission unit when divided by 365 is less than or equal to 0.5 lb./day, such an increase shall be rounded to 0. The sum of the emission increases from new or modified emission units involved in this project that round to 0 shall not constitute a Federal Major Modification.

The total project annual emissions increase calculated in the table above when divided by 365 is:

6,307 lb-NOx/year ÷ 365 days/year = 17.3 lb-NOx/day.
2,803 lb-PM10/year ÷ 365 days/year = 7.7 lb-PM10/day.
946 lb-VOC/year ÷ 365 days/year = 2.6 lb-VOC/day.

As shown above, NOx, PM10, and VOC do not round to 0.

In conclusion, the project's total emission increases are summarized in the following table and are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	**Total Emissions Increases (lb/yr)**	**Thresholds (lb/yr)**	**Federal Major Modification?**
NO_x*	6,307	0	Yes
VOC*	946	0	Yes
PM_{10}	2,803	30,000	No
$PM_{2.5}$	2,803	20,000	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 and VOC emissions, this project constitutes a Federal Major Modification. Consequently, as discussed below in the offset section of this evaluation, pursuant to Section 7.4.2.1 of District Rule 2201, NOx and VOC Emission Reduction Credits (ERCs) used to satisfy the offset quantity required under District Rule 2201 must be surplus at the time of use (ATC issuance).

Separately, Federal Offset Quantity is calculated below.

New Major Source

As demonstrated above, this facility is not becoming a Major Source as a result of this project; therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

Federal Offset Quantity Calculation

The Federal Offset Quantity (FOQ) is only calculated for the pollutants for which a project is a Federal Major Modification or a New Major Source as determined above.

Pursuant to 40 CFR 51.165(a)(3)(ii)(J), 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) for each emission unit times the applicable federal offset ratio.

FOQ = ∑(PE2 – AE) x Federal offset ratio

Actual Emissions

As described in 40 CFR 51.165(a)(1)(xii), actual emissions (AE), as of a particular date, shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

Since this is a new unit, AE = 0

Federal Offset Ratio

According the CAA 182(e), the federal offset ratio for VOC and NOx is 1.5 to 1 due to the District extreme non-attainment status for ozone. Otherwise, the federal offset ratio for PM2.5, PM10, and SOx is 1.0 to 1.

Federal Offset Quantity (FOQ)

Since this project only includes a new unit,

FOQ = PE2 x Federal offset ratio

NOx **Federal Offset Ratio** **1.5**

Permit No.	Post-Project Potential to Emit (PE2) (lb/year)	Actual Emissions (lb/year)	Emissions Change (lb/yr)
S-2234-251-0	6,307	0	6,307
		∑(PE2 – AE) (lb/year):	**6,307**
		Federal Offset Quantity (lb/year): ∑(PE2 – AE) x 1.5	**9,461**
		Federal Offset Quantity (tons/year): ∑(PE2 – AE) x 1.5 ÷ 2,000	**4.7**

VOC **Federal Offset Ratio** **1.5**

Permit No.	Post-Project Potential to Emit (PE2) (lb/year)	Actual Emissions (lb/year)	Emissions Change (lb/yr)
S-2234-251-0	946	0	946
		∑(PE2 – AE) (lb/year):	**946**
		Federal Offset Quantity (lb/year): ∑(PE2 – AE) x 1.5	**1,419**
		Federal Offset Quantity (tons/year): ∑(PE2 – AE) x 1.5 ÷ 2,000	**0.7**

PM2.5 Federal Offset Sanctions

As of June 27, 2023, the District is in nonattainment new source review (NNSR) offset sanctions pursuant to CAA 179(a), for deficiencies EPA identified in the District's PM2.5 plan submittal. Therefore, any new major source of PM2.5 emissions, or federal major modification for PM2.5 (including increases of its precursors NOx and SOx at existing PM2.5 major sources), and that requires offsets for PM2.5, NOx, or SOx, must supply those offsets at a 2:1 ratio.

PM2.5 Major Source Determination (lb/year)			
Pollutant	**SSPE1 (lb/yr)**	**Major Source Threshold (lb/yr)**	**Existing PM2.5 Major Source?**
$PM_{2.5}$	213,201	140,000	Yes

PM2.5 Federal Major Modification Determination (lb/year)				
Pollutant	**Emission Increase (lb/year)**	**Significance Threshold for PM2.5 (lb/yr)**	**PM2.5 Federal Major Modification?**	**2:1 Offset Ratio?**
Direct Emitted $PM_{2.5}$	2,803	20,000	No	No
SOx*	999	80,000	No	No
NOx*	6,307	80,000	No	No

* PM2.5 Precursors

As seen in the tables above, this facility is an existing Major Source for PM2.5, and the emission increases from this project are not greater than the PM2.5 significance thresholds for direct PM2.5, SOx, and NOx. Therefore, this project will not be a federal major modification for PM2.5 and offsets are not required for PM2.5, SOx, and NOx at a 2:1 ratio.

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

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

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

I. Project Location Relative to Class 1 Area

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be an 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 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	3.2	0.5	1.4	1.4	1.4
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	No	No	No	No	No

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 B.**

VIII. Compliance Determination

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, 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 flare with a PE greater than 2 lb/day for NO_X, SO_X PM_{10}, CO, and VOC. BACT is triggered for NO_X, PM_{10}, SO_X, and VOC since the PEs are greater than 2 lb/day. Additionally, BACT is triggered for CO since the PE is greater than 2 lb/day and the SSPE2 for CO is greater than 200,000 lb/year, as demonstrated in Section VII.C.5 above.

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 an SB 288 and/or Federal Major Modification for NO_X and VOC emissions. Therefore BACT is triggered for NO_X and VOC for the flare in this project.

2. BACT Guideline

All BACT Guidelines for flares have been rescinded. Therefore, a site-specific BACT analysis will be done for this project.

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: 0.018 lb/MMBtu (15 ppmv @ 3% O2)
SOx: 0.00285 lb/MMBtu (1 gr/100 scf)
CO: 0.0076 lb/MMBtu (10 ppmv @ 3% O2)
PM_{10}: 0.008 lb/MMBtu (Smokeless Combustion)
VOC: 0.0027 lb/MMBtu (7 ppmv @ 3% O2)

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, 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	1,357,188	83,600	216,004	7,162,947	3,342,719
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of District Offsets Required

As demonstrated above, District offsets are triggered for NOx, SOx, PM10, CO, and VOC under NSR.

<u>Surplus at the Time Of Use Emission Reduction Credits – NOx and VOC only</u>

As demonstrated above, this project does trigger Federal Major Modification or New Major Source requirements for NOx and VOC emissions and federal offset quantities are required for this project for NOx and VOC. Pursuant to Section 7.4.2.1 of District Rule 2201, emission reduction credits used to satisfy federal offset quantities for NOx and VOC must be creditable and surplus at the time of use (ATC issuance).

The applicant has stated that the facility plans to use ERC certificates S-5153-2 and S-1717-1 to satisfy the required federal offset quantities for NOx and VOC respectively. Pursuant to the ERC surplus analysis in **Appendix D**, the District has verified that the credits from the proposed ERC certificates are sufficient to satisfy the federal offset quantities for NOx and VOC required for this project.

<u>District Offset Quantities Calculation</u>

As demonstrated above, the facility has an SSPE1 for NO_x, SO_X PM10, CO, and VOC greater than the offset thresholds. Therefore, offset calculations will be required for this project.

The quantity of offsets in pounds per year for NO_x, PM10, CO, and VOC are 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

Since this is a new emissions unit, 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:

<u>NOx:</u>

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

PE2 (NO_X) = 6,307 lb/year
BE (NO_X) = 0 lb/year
ICCE = 0 lb/year

Pursuant to District Rule 2201, Section 4.8.1, the distance offset ratio (DOR) for a federal major modification is 1:1.5. Thus, the amount of NO_X ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([6,307 – 0] + 0) x DOR
= 6,307 x 1.5
= 9,461 lb-NO_X/year

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

Quarterly offsets required (lb/qtr) = (9,461 lb-NO_X/year) ÷ (4 quarters/year)

= 2,365.25 b-NO_X/qtr

As demonstrated 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**
0.0	Y	Y	Y	Y
0.25	Y	Y	Y	Y+1
0.5	Y	Y	Y+1	Y+1
0.75	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**
2,365	2,365	2,365	2,366	**9,461**

VOC:

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

PE2 (VOC) = 946 lb/year
BE (VOC) = 0 lb/year
ICCE = 0 lb/year

Pursuant to District Rule 2201, Section 4.8.1, the distance offset ratio (DOR) for a federal major modification is 1:1.5. Thus, the amount of VOC ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([946 – 0] + 0) x DOR
= 946 x 1.5
= 1,419 lb-VOC/year

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

Quarterly offsets required (lb/qtr) = (1,419 lb-VOC/year) ÷ (4 quarters/year)
= 354.75 lb-VOC/qtr

Similarly to NOx emissions above, offsets for VOC need to be redistributed as follows:

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**
0.0	Y	Y	Y	Y
0.25	Y	Y	Y	Y+1
0.5	Y	Y	Y+1	Y+1
0.75	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**
354	355	355	355	**1,419**

PM10:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR
PE2 (PM10) = 2,803 lb/year
BE (PM10) = 0 lb/year
ICCE = 0 lb/year

Based on the ERC being proposed to satisfy offset requirements, the offset ratio is 1:1.5, the amount of PM10 ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([2,803 – 0] + 0) x DOR
= 2,803 x 1.5
= 4,205 lb-PM10/year

Pursuant to Section 4.13.3.1 of Rule 2201, interpollutant offsets may be approved by the APCO on a case-by-case basis, provided that the applicant demonstrates to the satisfaction of the APCO, that the emission increases from the new or modified source will not cause or contribute to a violation of an Ambient Air Quality Standard. In such cases, the APCO shall, based on an air quality analysis, impose offset ratios equal to or greater than the requirements of this rule. Section 4.13.3.1.2 of Rule 2201 states that interpollutant offsets between PM10 and PM10 precursors may be allowed. According to Section 3.31 of this rule, SOx is a precursor to the sulfate fraction of PM10.

The applicant has proposed to use SOx ERC certificates C-1333-5, N-1079-5, N-1118-5, N-1129-5, and N-1387-5 as interpollutant offsets for PM10. The District offset ratio of SOx to PM10 is 1:1.

Offsets required for PM10 using SOx ERC credits is thus calculated as follows:

Adjusted Offsets required (lb/year) = 4,205 lb-PM10/year x 1
= 4,205 lb-PM10/year
Quarterly offsets required (lb/qtr) = (4,205 lb-PM10/year) ÷ (4 quarters/year)
= 1,051.25 lb-PM10/qtr

Similarly to NOx emissions above, offsets for PM10 need to be redistributed as follows:

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**
0.0	Y	Y	Y	Y
0.25	Y	Y	Y	Y+1
0.5	Y	Y	Y+1	Y+1
0.75	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**
1,051	1,051	1,051	1,052	**4,205**

As discussed above, District offsets are triggered and required for PM10 under NSR. However, as demonstrated above, this project does not trigger Federal Major Modification or New Major Source requirements for PM10 emissions. Therefore, the PM10 District offset quantities do not need to be surplus at time of use.

SOx:

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

PE2 (SO_X) = 999 lb/year
BE (SO_X) = 0 lb/year
ICCE = 0 lb/year

Based on the ERC being proposed to satisfy offset requirements, the offset ratio is 1:1.5, the amount of SO_X ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([999 – 0] + 0) x DOR
= 999 x 1.5
= 1,499 lb-SO_X/year

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

Quarterly offsets required (lb/qtr) = (1,499 lb-SO_X/year) ÷ (4 quarters/year)
= 374.75 lb-SO_X/qtr

Similarly to NOx emissions above, offsets for SOx need to be redistributed as follows:

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**
0.0	Y	Y	Y	Y
0.25	Y	Y	Y	Y+1
0.5	Y	Y	Y+1	Y+1
0.75	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**
374	375	375	375	**1,499**

As discussed above, District offsets are triggered and required for SOx under NSR. However, as demonstrated above, this project does not trigger Federal Major Modification or New Major Source requirements for SOx emissions. Therefore, the SOx District offset quantities do not need to be surplus at time of use.

CO Offsets:

Pursuant to section 4.6.1 of Rule 2201, increases in CO in attainment areas are exempt from offsetting 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. As shown below in section VII.F, Ambient Air Quality Standards are not violated; therefore, offsets are not required for CO emissions.

District and Federal Offset Quantities

NOx and VOC

As discussed above, District offsets are triggered and required for both NOx and VOC under NSR. In addition, as demonstrated above, this project does trigger Federal Major Modification requirements for both NOx and VOC emissions, and federal offset quantities are required for this project for both NOx and VOC. Pursuant to Section 7.4.2.1 of District Rule 2201, emission reduction credits used to satisfy federal offset quantities for NOx and VOC must be creditable and surplus at the time of use (ATC issuance).

Surplus at the Time Of Use Emission Reduction Credits

The applicant has stated that the facility plans to use ERC certificates S-5153-2 and S-1717-1 to satisfy the federal offset quantities for NOx and VOC respectively which are required for this project. Pursuant to the ERC surplus analysis in **Appendix D**, the District has verified that the credits from the ERC certificate(s) provided by the applicant are sufficient to satisfy the federal offset quantities for NOx and VOC required for this project. As demonstrated in **Appendix E**, the ERC certificates have sufficient emissions to offset the increases.

SOx and PM10

As discussed above, District offsets are triggered and required for SOx and PM10 under NSR.

The applicant has stated that the facility plans to use ERC certificate N-1387-5 for SOx and ERC certificates C-1333-5, N-1079-5, N-1118-5, N-1129-5, and N-1387-5 for PM10 to offset the increases in emissions associated with this project. As demonstrated in **Appendix E**, the ERC certificates have sufficient emissions to offset the increases.

Required District and Federal Offset Quantities Summary

The applicant has proposed to use the following emission reduction certificates:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-5153-2	6,160	6,159	6,159	6,159
ERC #S-1717-1	748	2,298	2,581	990
ERC #C-1333-5	280	280	280	280
ERC #N-1079-5	0	0	0	936
ERC #N-1118-5	250	250	250	250
ERC #N-1129-5	212	212	212	212
ERC #N-1387-5	450	456	456	455

As discussed in **Appendix E**, the facility has sufficient credits to fully offset the quarterly NO_X, VOC, SO_X, and PM10 emissions increases associated with this project.

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct:

NOx

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_X emission reduction credits for the following quantity of emissions: 1st quarter – 2,365 lb, 2nd quarter - 2,365 lb, 3rd quarter - 2,365 lb, and fourth quarter - 2,366 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- {GC# 1983} ERC Certificate Number S-5153-2 (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]

VOC

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 354 lb, 2nd quarter - 355 lb, 3rd quarter - 355 lb, and fourth quarter - 355 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- {GC# 1983} ERC Certificate Number S-1717-1 (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]

SOx

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_X emission reduction credits for the following quantity of emissions: 1st quarter – 374 lb, 2nd quarter – 374 lb, 3rd quarter – 374 lb, and fourth quarter – 375 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- {GC# 1983} ERC Certificate Number N-1387-5 (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]

PM10

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender SOx emission reduction credits as interpollutant offsets for PM10 in the following quantity of emissions: 1st quarter – 1,051 lb, 2nd quarter – 1,051 lb, 3rd quarter – 1,051 lb, and fourth quarter – 1,052 lb. These amounts include the

applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- {GC# 1983} ERC Certificate Numbers C-1333-5, N-1079-5, N-1118-5, N-1129-5, and N-1387-5, (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

3. ERC Withdrawal Calculations

As stated in the previous section, the applicant identified the ERC Certificates to be used to offset the increase of emissions for NOx, VOC, PM10, and SOx in the project. See **Appendix E** for detailed ERC Withdrawal Calculations.

C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, 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

As demonstrated in Section VII.C.7 of this evaluation, this project is a Federal Major Modification. Therefore, public noticing is required for this project for Federal Major Modification purposes.

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

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	**SSPE1 (lb/year)**	**SSPE2 (lb/year)**	**Offset Threshold**	**Public Notice Required?**
NO_X	1,350,881	1,357,188	20,000 lb/year	No
SO_X	82,969	83,968	54,750 lb/year	No
PM_{10}	213,201	216,004	29,200 lb/year	No
CO	7,160,144	7,162,947	200,000 lb/year	No
VOC	3,341,778	3,342,719	20,000 lb/year	No

As demonstrated 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	1,357,188	1,350,881	6,307	20,000 lb/year	No
SO_x	83,968	82,969	999	20,000 lb/year	No
PM_{10}	216,004	213,201	2,803	20,000 lb/year	No
CO	7,162,947	7,160,144	2,803	20,000 lb/year	No
VOC	3,342,719	3,341,778	946	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 since it is a federal major modification and a significant permit modification. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website 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.

For this flare, the DELs are stated in the form of emission factors (lb/MMBtu) and the maximum operational time of 24 hours per day.

Proposed Rule 2201 (DEL) Conditions:

- Emission rates from this the flare shall not exceed any of the following limits: NOx - 0.018 lb/MMbtu; CO - 0.0076 lb/MMbtu; PM10 - 0.008 lb/MMBtu; or SOx (as SO2) - 0.00285 lb/MMBtu, VOC - 0.0027 lb/MMbtu. [District Rules 2201 and 4311]

- Total sulfur concentration of gas introduced to the flare shall not exceed 1.0 gr-S/100 scf. [District Rules 2201 and 4801]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705 - Source Testing Frequency, units equipped with afterburners, thermal incinerators, or catalytic incinerators for controlling VOCs must be tested upon initial start-up and annually thereafter. Periodic source testing will also be required for NO_X and CO emissions, and initial source testing will be required to ensure compliance with the proposed emission limits.

The following conditions will be included on the ATC permit:

- Source testing to measure NOx, CO, and VOC emissions shall be conducted within 60 days of initial start-up. [District Rule 2201]

- Source testing to measure NOx and VOC emissions shall be conducted at least once every twelve (12) months. [District Rules 2201 and 4311]

- Source testing to measure CO emissions shall be conducted at least once every twelve (12) months. [District Rules 2201]

- {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rules 1081 and 4311]

- The results of each source test shall be submitted to the District within 60 days after completion of the source test. [District Rules 1081 and 4311]

- NOx emissions for source test purposes shall be determined using EPA Method 19, EPA Method 7E, or ARB Method 100. [District Rules 1081, 2201, and 4311]

- CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 1081 and 2201]

- VOC emissions for source test purposes shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case Method 25a may be used, and analysis of halogenated exempt compounds shall be analyzed by EPA Method 18 or ARB Method 422 "Determination of Volatile organic Compounds in Emission from Stationary Sources" shall be determined by EPA Method 18, EPA Method 25, or EPA Method 25A. [District Rules 1081, 2201, and 4311]

- Stack gas oxygen (O2) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rules 1081, 2201, and 4311]

- For source test purposes, stack gas velocity/volumetric flowrate shall be determined using EPA Method 2 or EPA Method 19, and stack gas moisture content shall be determined using EPA Method 4. [District Rules 1081 and 2201]

- All source test emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rules 1081 and 2201]

- For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 1081 and 2201]

2. Monitoring

Annual monitoring of the sulfur content of the gas combusted will be required to ensure compliance with the permit limit for the sulfur content of the gas combusted.

The following conditions will be included on the ATC permit:

- The permittee shall determine and record the sulfur content of the gas combusted in the flare at least annually and whenever there is a change in the source of the gas. [District Rule 2201]
- The sulfur content of the gas combusted shall be determined using EPA Method 11 or EPA Method 15, or ASTM Method D1072, D4084, or D5504, or an alternative method approved by the District. [District Rule 2201]

To ensure compliance with the conditions of the permit, the permittee will also be required to determine the higher heating value (HHV) of the gas.

The following conditions will be included on the ATC permit:

- The permittee shall determine and record the higher heating value (HHV) of the gas combusted in the flare at least annually and whenever there is a change in the source of the gas. [District Rule 2201]

- The Higher Heating Value (HHV) of the gas combusted shall be determined using ASTM D1826, ASTM 1945 in conjunction with ASTM D3588, or an alternative method approved by the District. [District Rule 2201]

3. Recordkeeping

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

- Permittee shall maintain daily and annual records of the quantity of gas combusted in the flare in standard cubic feet (scf) and the total heating value of the gas combusted in MMBtu. [District Rules 1070, 2201, and 4311]

- The total heating value of the gas combusted shall be calculated using the quantity of gas combusted and the most recent determination of the Higher Heating Value (HHV) of the gas as required by this permit. [District Rule 2201]

- Records of the sulfur content and the Higher Heating Value (HHV) in Btu/scf of the gas combusted shall be maintained. [District Rules 1070 and 2201]
- All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, and 4311]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of District Rule 2201 requires that an AAQA 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 F** 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 major source and this project constitutes a Federal Major Modification, therefore this requirement is applicable. CREH has submitted compliance certification and it is included in **Appendix G**.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a 40 MMBtu/hr natural gas-fired flare as a VOC destruction device.

Since the project will add a control device to reduce VOC 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 section 111 or 112 of the Federal Clean Air Act, where the term modification means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted. The emissions units associated with this project are new sources of emissions. Therefore, the project constitutes a significant modification to the Title V Permit.
As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permits are issued. The following conditions, previously stated in this evaluation, will be added to the ATCs to ensure compliance:

• *{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]*

• *{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]*

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 60.18 refers to control devices such as the flare in this project.

This section contains requirements for control devices used to comply with applicable subparts of parts 60 and 61. The requirements only apply to facilities covered by subparts referring to this section. None of the equipment in this project is covered by subparts which require external control devices and refer to this subpart. Therefore, the flare is not subject to NSPS.

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 long as the equipment is properly maintained and operated, compliance with visible emissions limits is expected under normal operating conditions.

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

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

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.
The following condition will be included on the ATC permit to ensure compliance.

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District's significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1.

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project, the total facility prioritization score including this project was less than or equal to one.

The resulting prioritization score for this project is shown below.

Health Risk Assessment Summary						
Units	**Prioritization Score**	**Acute Hazard Index**	**Chronic Hazard Index**	**Maximum Individual Cancer Risk**	**T-BACT Required**	**Special Permit Requirements**
251-0	0.05	0.00	0.00	3.77E-07	No	Yes
Project Totals	0.05	0.00	0.00	3.77E-07		
Facility Totals	>1	0.26[1]	0.02[1]	3.00E-06[1]		

Notes:
1. Facilities S2234 and S9168 are the same stationary source so their facility totals are aggregated.

In accordance with District policy APR 1905, no further analysis is required to determine the

impact from this project and compliance with the District's Risk Management Policy is expected.

Compliance with District Rule 4102 requirements is expected.

See **Appendix F**: Health Risk Assessment Summary

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. In accordance with District policy APR 1905, no further analysis is required, and compliance with District Rule 4102 requirements is expected.

See **Appendix F**: Health Risk Assessment Summary

The following permit condition is required to ensure compliance with the assumptions made for the risk management review:

- The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]

Rule 4201 Particulate Matter Concentration

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

$$0.008 \quad \frac{lb}{MMBtu} \times \frac{MMBtu}{8{,}578\,dscf} \times \frac{7{,}000\,grain}{lb} = \quad 0.007 \quad \frac{grain}{dscf}$$

Since 0.007 grain/dscf is less than 0.1 grain/dscf, compliance with this rule is expected.

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

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

Rule 4311 Flares

The purpose of this rule is to limit emissions of VOCs, NOx, and SOx from the operation of flares. Section 5.1 states that flares that are permitted to operate only during an emergency are not subject to the requirements of Sections 5.7, 5.8, 5.9, and 5.10.

The applicant does not propose to operate the flare as emergency use. Therefore, it is not exempt from the requirements of Sections 5.7 through 5.10.

Section 5.2 states that flares that are operated 200 hours or less per calendar year as specified in the permit to operate, or with an annual throughput limit equivalent to 200 hours per year at flare rating (MMBtu/hr) as specified in the permit to operate, are exempt from the requirements of Sections 5.9 and 5.10.

The applicant does not propose to limit operation of the flare to 200 hours or less per calendar year. Therefore, it is not exempt from the requirements of Sections 5.9 and 5.10.

Sections 5.3 states that the flame shall be present at all times when combustible gases are vented through the flare. The following condition will be included:

- {2329} The flame shall be present at all times when combustible gases are vented through the flare. [District Rule 4311]

Section 5.4 states that the outlet shall be equipped with an automatic ignition system, or, shall operate with a pilot flame present at all times when combustible gases are vented through the flare, except during purge periods for automatic-ignition equipped flares. The flare will use a continuous pilot. The following condition will be included:

- {2330} The flare outlet shall be equipped with an automatic ignition system, or, shall operate with a pilot flame present at all times when combustible gases are vented through the flare. The pilot need not be present when the flare is isolated for required flare maintenance. [District Rule 4311]

Section 5.5 states that, except for flares equipped with a flow-sensing ignition system, a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an alternative equivalent device, capable of continuously detecting at least one pilot flame or the flare flame is present shall be installed and operated. The following condition will be included:

- Unless the flare is equipped with a flow-sensing ignition system, the flare shall be equipped and operated with a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an equivalent device, capable of continuously detecting at least one pilot flame. [District Rule 4311]

Section 5.6 states that flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. The following condition will be included:

- The flare shall use purge gas, as defined by Rule 4311, for purging. [District Rule 4311]

Section 5.7 states that open flares with flare gas pressure less than 5 psig shall comply with 40 CFR 60.18. This section also states that the requirements of this section shall not apply to Coanda effect flares.

The flare gas pressure of the proposed flare is greater than 5 psig. Therefore, this section does not apply.

Section 5.8 provides emissions limits in Table 1 for ground-level enclosed flares. The proposed flare is a ground-level enclosed unit. However, the flare is used for oil and gas operations and will be subject to the more stringent limits on Table 2.

Section 5.9 states that, except for flares that meet the emissions limits in Table 3, operators of flares located at operations specified in Table 2 shall complete one of the following options:

- 5.9.1 Submit an ATC application to limit flaring annual throughput through an enforceable Permit to Operate limit, to levels not to exceed those specified in Table 2 for two consecutive years, per the compliance schedule in Section 7.2; or

- 5.9.2 Replace or modify the existing flare to meet Table 3 emissions limits per the compliance schedule in Section 7.3.

Table 2 – Flare Annual Throughput Thresholds (MMBtu/calendar year)	
Flare Category	MMBtu/yr
A. Flares used at Oil and Gas Operations, and Chemical Operations	25,000
B. Flares used at Landfill Operations	90,000
C. Flares used at Digester Operations	100,000
D. Flares used at Organic Liquid Loading Operations	25,000

Table 3 – VOC and NOx Emissions Requirements for Flares		
Flare Category	VOC (lb/MMBtu)	NOx (lb/MMBtu)
A. Flares at Oil and Gas Operations or Chemical Operations	0.008	0.018
B. Flares at Landfill Operations	0.038	0.025
C. Flares at Digester Operations (Located at a Major Source)	0.038	0.025
D. Flares at Digester Operations (Not located at a Major Source)	N/A	0.060
E. Flares at Organic Liquid Loading Operations	Pounds/1,000 gallons loaded	
	N/A	0.034

As specified above, the unit is subject to the requirements of Sections 5.9. The applicant has proposed NOx and VOC emission limits that comply with Table 3, Category A. The following condition will ensure compliance:

- Emission rates from this the flare shall not exceed any of the following limits: NOx - 0.018 lb/MMbtu; CO – 0.0076 lb/MMbtu; PM10 - 0.008 lb/MMBtu; or SOx (as SO2) - 0.00285 lb/MMBtu, VOC - 0.0027 lb/MMbtu. [District Rules 2201 and 4311]

Section 5.11 states that, effective on and after July 1, 2011, flaring is prohibited at petroleum refineries and major sources, except landfill operations, unless it is consistent with an

approved flare minimization plan (FMP), pursuant to Section 6.5, and all commitments listed in that plan have been met. This standard shall not apply if the APCO determines that the flaring is caused by an emergency as defined by Section 3.10 and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere.

The applicant's FMP will be updated upon implementation of this ATC. The following condition will ensure compliance:

- Flaring is prohibited unless it is consistent with an approved flare minimization plan (FMP), and all commitments listed in that plan have been met. This standard shall not apply if the APCO determines that the flaring is caused by an emergency and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere. [District Rule 4311]

Section 5.13 states that, effective on and after July 1, 2011, the operator of a flare at a petroleum refinery or major source, except landfill operations, subject to flare minimization requirements pursuant to Section 5.11 shall monitor the vent gas flow to the flare with a flow measuring device or other parameters as specified in the Permit to Operate. The operator shall maintain records pursuant to Section 6.1.7. Flares that the operator can verify, based on permit conditions, are not capable of producing reportable flare events pursuant to Section 6.2.2 shall not be required to monitor vent gas flow to the flare.

The facility is a major source and is subject to Section 5.11; therefore, the following conditions will be included in the permits:

- The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rule 4311]

- Permittee shall maintain daily and annual records of the quantity of gas combusted in the flare in standard cubic feet (scf) and the total heating value of the gas combusted in MMBtu. [District Rules 1070, 2201, and 4311]

Section 6.0 Recordkeeping Requirements

Section 6.1 states that the following records shall be maintained, retained on-site for a minimum of five years, and made available to the APCO, ARB, and EPA upon request:

6.1.1 Copy of the compliance determination conducted pursuant to Section 6.4.1.

The flare is not subject to section 6.4.1, therefore this subsection does not apply.

6.1.2 Copy of the source testing result conducted pursuant to Section 6.4.2.

The flare requires source testing, therefore this subsection applies.

6.1.3 For flares used during an emergency, record of the duration of flare operation, amount of gas burned, and the nature of the emergency situation.

The flare is not used for emergency purposes, therefore this subsection does not apply.

6.1.4 Operators claiming an exemption pursuant to Section 5.2 shall record annual hours of operation or annual throughput necessary to demonstrate an exemption under that section.

The flare does not claim an exemption pursuant Section 5.2; therefore, this subsection does not apply.

6.1.5 A copy of the approved flare minimization plan pursuant to Section 6.5.

The flare is subject to Section 6.5, therefore this subsection applies.

6.1.6 A copy of annual reports submitted to the APCO pursuant to Section 6.2.

Section 6.2 establishes which reports need to be submitted for flares subject to Section 5.11.

The flare in this project is subject to Section 5.11 (flare minimization plan); therefore, the recordkeeping requirements of subsection 6.1.6 apply.

6.1.7 Monitoring data collected pursuant to Sections 5.13, 5.14, 6.6, 6.7, 6.8, 6.9, and 6.10.

The flare is subject to Section 5.13. However, it is not subject to Section 5.14 since it complies with Table 3 requirements. Furthermore, the requirements of sections 6.6 through 6.9 do not apply as they are intended for flares with a capacity of 50 MMBtu/hr or greater which is greater than the capacity of the flare in this project. Section 6.10 does not apply as this section is intended for flares at petroleum refineries. Therefore, the monitoring requirements from subsection 6.1.7 only apply to monitoring of the requirements in Sections 5.13. The following conditions will be included on the ATC:

- Permittee shall maintain copies of the source testing result conducted pursuant to Section 6.4.2, a copy of the approved flare minimization plan pursuant to Section 6.5, a copy of annual reports submitted to the APCO pursuant to Section 6.2 and monitoring data collected by the vent gas flow measuring device pursuant to Section 5.13. [District Rule 4311]

- Flares that the operator can verify, based on permit conditions, that are not capable of producing reportable flaring events pursuant to Section 6.2.2 shall not be required to monitor vent gas flow to the flare. [District Rule 4311]

- A Reportable Flaring Event is defined as any flaring where more than 500,000 standard cubic feet of vent gas is flared per calendar day, or where sulfur oxide emissions are greater than 500 pounds per calendar day. [District Rule 4311]

Section 6.2 establishes which reports need to be submitted for flares subject to Section 5.11. The flare in this project is subject to Section 5.11; therefore, this section applies.

Subsection 6.2.1 states that for flares subject to flare minimization plans, the operator shall notify the APCO of any unplanned flaring events within 24 hours after the start of the next business day or within 24 hours of their discovery, whichever occurs first. The notification shall include the flare source identification, the start date, and the end date and time.

The following condition will be included on the permit:

- The operator shall notify the APCO of an unplanned flaring event within 24 hours after the start of the next business day or within 24 hours of their discovery, whichever occurs first. The notification shall include the flare source identification, the start date and time, and the end date and time. [District Rule 4311]

Subsection 6.2.2 states that, effective on and after July 1, 2012, and annually thereafter, except for flares meeting the emission limits in Table 3, the operator of a flare subject to flare minimization plans pursuant to Section 5.11 shall submit an annual report to the APCO that summarizes all Reportable Flaring Events as defined in Section 3.0 that occurred during the previous 12 month period. Beginning January 1, 2024, the report shall be submitted within 30 days following the end of the previous calendar year. The report shall include, but is not limited to all of the following:

6.2.2.1 The results of an investigation to determine the primary cause and contributing factors of the flaring event;

6.2.2.2 Any prevention measures considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented;

6.2.2.3 If appropriate, an explanation of why the flaring was an emergency and necessary to prevent accident, hazard or release of vent gas to the atmosphere, or where, due to a regulatory mandate to vent a flare, it cannot be recovered, treated and used as a fuel gas at the facility; and

6.2.2.4 The date, time, and duration of the flaring event.

The flare in this project is subject to the limits in Table 3 and is subject to the requirements of Section 5.11; therefore, this section applies and the following condition will be added to the permits:

- The operator shall submit an annual report to the APCO that summarizes all Reportable Flaring Events that occurred during the previous 12-month period. Beginning January 1, 2024, the report shall be submitted within 30 days following the end of the previous calendar year. The report shall include: 1) the results of an investigation to determine the primary cause and contributing factors of the flaring event; 2) Any prevention measures considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented; 3) If appropriate, an explanation of why the flaring was an emergency and necessary to prevent accident, hazard or release of vent gas to the atmosphere, or where, due to a regulatory mandate to vent a flare, it cannot be recovered, treated and used as a fuel gas at the facility; and 4) The date, time and duration of the flaring event. [District Rule 4311]

Subsection 6.2.3 establishes guidelines on submitting annual monitoring reports.
Until January 1, 2024, the operator of a flare at a petroleum refinery or major source, except landfill operations, subject to flare monitoring requirements pursuant to Sections 5.13, 5.14, 6.6, 6.7, 6.8, 6.9, and 6.10, as appropriate, shall submit an annual report to the APCO within 30 days following the end of each 12-month period.

On and after January 1, 2024, and annually thereafter, the operator of any flare subject to flare monitoring requirements pursuant to Sections 5.13, 5.14, 6.6, 6.7, 6.8, 6.9, and 6.10, as appropriate, shall submit an annual report in an electronic format approved by the District to the APCO within 30 days following the end of each calendar year for all required monitoring under those sections.

The report shall include the following:

6.2.3.1 The total volumetric flow of vent gas in standard cubic feet for each day for the previous calendar year.

6.2.3.2 Hydrogen sulfide content, methane content, and hydrocarbon content of vent gas composition, where applicable pursuant to Section 6.6.

6.2.3.3 If vent gas composition is monitored by a continuous analyzer or analyzers pursuant to Section 5.14, average total hydrocarbon content by volume, average methane content by volume, and depending upon the analytical method used pursuant to Section 6.3.4, total reduced sulfur content by volume or hydrogen sulfide content by volume of vent gas flared for each hour of the month.

6.2.3.4 If the flow monitor used pursuant to Section 5.13 measures molecular weight, the average molecular weight for each hour of each month.

6.2.3.5 For any pilot and purge gas used, the type of gas used, the volumetric flow for each day and for each month, and the means used to determine flow, as applicable pursuant to Section 6.7.

6.2.3.6 Flare monitoring system downtime periods, including dates and times, as applicable pursuant to Section 6.9.

6.2.3.7 For each day and for each month provide calculated sulfur dioxide emissions, as applicable.

6.2.3.8 A flow verification report for each flare subject to this rule. The flow verification report shall include flow verification testing pursuant to Section 6.3.5.

6.2.3.9 For flares subject to the annual throughput thresholds specified in Table 2, include the annual throughput in MMBtu for the previous calendar year.

The flare in this project is subject to Section 5.13, and the facility is a major source; therefore, this subsection applies and the following condition will be included in the permit:

- Until January 1, 2024, the operator shall submit an annual monitoring report to the APCO within 30 days following the end of each 12-month period. On and after January 1, 2024, and annually thereafter, the operator shall submit the annual monitoring report in an electronic format approved by the District to the APCO within 30 days following the end of each calendar year, which will include: 1) The total volumetric flow of vent gas in standard cubic feet for each day; 2) Hydrogen sulfide content, methane content, and hydrocarbon content of vent gas composition pursuant to Section 6.6; 3) If vent gas composition is monitored by a continuous analyzer or analyzers pursuant to Section 5.14, average total hydrocarbon content by volume, average methane content by volume, and depending upon the analytical method used pursuant to Section 6.3.4, total reduced sulfur content by volume or hydrogen sulfide content by volume of vent gas flared for each hour of the month; 4) If the flow monitor used pursuant to Section 5.13 measures molecular weight, the average molecular weight for each hour of each month; 5) For any pilot and purge gas used, the type of gas used, the volumetric flow for each day and for each month, and the means used to determine flow; 6) Flare monitoring system downtime periods, including dates and times; 7) For each day and for each month provide calculated sulfur dioxide emissions; 8) A flow verification report for each flare subject to this rule. The flow verification report shall include flow verification testing pursuant to Section 6.3.5. [District Rule 4311]

Section 6.3 lists the test methods that shall be used to demonstrate compliance with this rule.

Subsections 6.3.1, 6.3.2, and 6.3.3 establish test methods for VOC, NOx, and O_2 concentrations.

Subsection 6.3.4 establishes testing and sampling methods for flares subject to Section 6.6 (flares with capacity ≥ 50 MMBtu/hr).

The flare is not subject to section 6.6, therefore, this subsection does not apply.

Subsection 6.3.5 establishes the test methods for purposes of the flow verification report required by Section 6.2.3.8.

Subsection 6.3.6 establishes the test methods to determine the heating value of flared gas.

The following conditions will be added to ensure compliance with the applicable subsections:

- The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rules 2201 and 4311]

- The heating value of flare gas shall be determined by ASTM D1826-88 or ASTM D1945-81 in conjunction with ASTM D3588-89; alternately, an operator may elect to use a default heating value from Table 4 of this rule. [District Rule 4311]

Section 6.4 outlines requirements for compliance determination.

Subsection 6.4.1 states that, the operator of flares subject to emission limits in Table 1 and Table 3, Categories A, B, and C shall conduct source testing at least once every 12 months to demonstrate compliance with Section 5.8. The operator shall submit a copy of the testing protocol to the APCO at least 30 days in advance of the scheduled testing. The operator shall submit the source test results not later than 60 days after completion of the source testing. The following conditions will be included to ensure compliance:

- Source testing to measure NOx and VOC emissions shall be conducted at least once every twelve (12) months. [District Rules 2201 and 4311]

- {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rules 1081 and 4311]

- The results of each source test shall be submitted to the District within 60 days after completion of the source test. [District Rules 1081 and 4311]

- NOx emissions for source test purposes shall be determined using EPA Method 19, EPA Method 7E, or ARB Method 100. [District Rules 1081, 2201 and 4311]

- VOC emissions for source test purposes shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case Method 25a may be used, and analysis of halogenated exempt compounds shall be analyzed by EPA Method 18 or ARB Method 422 “Determination of Volatile organic Compounds in Emission from Stationary Sources” shall be determined by EPA Method 18, EPA Method 25, or EPA Method 25A. [District Rules 1081, 2201, and 4311]

- Stack gas oxygen (O2) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rules 1081, 2201, and 4311]

Section 6.5 provides guidelines on the flare minimization plan, stating that the operator of a petroleum refinery flare or any flare that has a flaring capacity of greater than or equal to 5.0 MMBtu per hour shall submit a flare minimization plan (FMP) to the APCO for approval.

The flare in this project has a rating greater than 5 MMBtu/hr. Therefore, it is subject to this section.

The FMP shall include, but not be limited to, the following:

6.5.1.1 A description and technical specifications for each flare and associated knock-out pots, surge drums, water seals and flare gas recovery systems.

6.5.1.2 Detailed process flow diagrams of all upstream equipment and process units venting to each flare, identifying the type and location of all control equipment.
6.5.1.3 A description of equipment, processes, or procedures the operator plans to install or implement to eliminate or minimize flaring and planned date of installation or implementation.

6.5.1.4 An evaluation of prevention measures to reduce flaring that has occurred or may be expected to occur during planned major maintenance activities, including startup and shutdown.

6.5.1.5 An evaluation of preventative measures to reduce flaring that may be expected to occur due to issues of gas quantity and quality. The evaluation shall include an audit of the vent gas recovery capacity of each flare system, the storage capacity available for excess vent gases, and the scrubbing capacity available for vent gases including any limitations associated with scrubbing vent gases for use as a fuel; and shall determine the feasibility of reducing flaring though the recovery, treatment and use of the gas or other means.

6.5.1.6 An evaluation of preventative measures to reduce flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall determine the adequacy of existing maintenance schedules and protocols for such equipment. For purposes of this section, a failure is recurrent if it occurs more than twice during any five year period as a result of the same cause as identified in accordance with Section 6.2.2.

6.5.1.7 Any other information requested by the APCO as necessary for determination of compliance with applicable provisions of this rule.
Subsection 6.5.2 states that every five years after the initial FMP submittal, the operator shall submit an updated FMP for each flare to the APCO for approval. The current FMP shall remain in effect until the updated FMP is approved by the APCO. If the operator fails to submit an updated FMP as required by this section, the existing FMP shall no longer be considered an approved plan.

Subsection 6.5.3 states that an updated FMP shall be submitted by the operator pursuant to Section 6.5 addressing new or modified equipment, prior to installing the equipment. Updated FMP submittals are only required if:

6.5.3.1 The equipment change would require an authority to construct (ATC) and would impact the emissions from the flare, and

6.5.3.2 The modification is not solely the removal or decommissioning of equipment that is listed in the FMP, and has no associated increase in flare emissions.

Subsection 6.5.4 states that, when submitting the initial FMP, or updated FMP, the operator shall designate as confidential any information claimed to be exempt from public disclosure under the California Public Records Act, Government Code Section 6250 et seq. If a document is submitted that contains information designated confidential, the operator shall provide a justification for this designation and shall submit a separate copy of the document with the information designated confidential redacted.

The following conditions will be included on the ATC:

- The Flare Minimization Plan (FMP) shall include, but is not limited to, the following: 1) A description and technical specifications for the flare and associated knock-out pots, surge drums, water seals and flare gas recovery systems; 2) Detailed process flow diagrams of all upstream equipment and process units venting to the flare, identifying the type and location of all control equipment; 3) A description of equipment, processes, or procedures the operator plans to install or implement to eliminate or minimize flaring and planned date of installation or implementation; 4) An evaluation of prevention measures to reduce flaring that has occurred or may be expected to occur during planned major maintenance activities, including startup and shutdown; 5) An evaluation of preventative measures to reduce flaring that may be expected to occur due to issues of gas quantity and quality. The evaluation shall include an audit of the vent gas recovery capacity of the flare system, the storage capacity available for excess vent gases, and the scrubbing capacity available for vent gases including any limitations associated with scrubbing vent gases for use as a fuel; and shall determine the feasibility of reducing flaring through the recovery, treatment and use of the gas or other means; 6) An evaluation of preventative measures to reduce flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall determine the adequacy of existing maintenance schedules and protocols for such equipment. A failure is recurrent if it occurs more than twice during any 5-year period as a result of the same cause as identified in accordance with Section 6.2.2; 7) Any other information requested by the APCO as necessary for determination of compliance with applicable provisions of this rule. [District Rule 4311]

- Every five years after the initial Flare Minimization Plan (FMP) submittal, the operator shall submit an updated FMP for the flare to the APCO for approval. The current FMP shall remain in effect until the updated FMP is approved by the APCO. If the operator fails to submit an updated FMP, the existing FMP shall no longer be considered an approved plan. [District Rule 4311]

- An updated FMP shall be submitted by the operator addressing new or modified equipment, prior to installing the equipment only if: 1) The equipment change would require an Authority To Construct (ATC) and would impact the emissions for the flare; 2) The ATC is deemed complete after June 18, 2009; 3) The modification is not solely

the removal or decommissioning of equipment that is listed in the FMP and has no associated increase in flare emissions. [District Rule 4311]

- When submitting the initial FMP, or updated FMP, the operator shall designate as confidential any information claimed to be exempt from public disclosure under the California Public Records Act, Government Code Section 6250 et seq. and provide a justification for this designation and also submit a separate copy of the document with the information designated confidential redacted. [District Rule 4311]

Section 7.0 Compliance Schedule

Section 7.2 is for operators of flares opting to limit flaring annual throughput per Section 5.9.1, which limits the flaring throughput for flares used at oil and gas operations to 25,000 MMBtu/yr. The compliance schedule is included in Table 5 of this rule.

The facility has proposed to meet Table 3 requirements and thus does not need to limit the throughput of the flare to the thresholds specified in Table 2. No further discussion is required.

Section 7.4 is intended for operators of flares subject to Section 5.10. The flare is not subject to Section 5.10, therefore this section does not apply.

The flare is expected to comply with all the requirements of this Rule.

Rule 4801 Sulfur Compounds

The purpose of this rule is to limit the emissions of sulfur compounds. A maximum concentration and test method are specified. The provisions of this rule shall apply to any discharge to the atmosphere of sulfur compounds, which would exist as a liquid or a gas at standard conditions. Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO_2), on a dry basis averaged over 15 consecutive minutes.

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

$$\text{Volume } SO_2 = \frac{n\,RT}{P}$$

Where:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi

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

EPA F-Factor for the gas: 8,578 dscf/MMBtu at 60 ^{o}F

$$\frac{0.00285\ lb-SOx}{MMBtu}\times\frac{1\ MMBtu}{8{,}578\ dscf}\times\frac{1\ lb\cdot mol}{64\ lb-SOx}\times\frac{10.73\ psi\cdot ft^3}{lb\cdot mol\cdot {}^{\circ}R}\times\frac{520\ {}^{\circ}R}{14.7\ psi}\times\frac{1{,}000{,}000\ parts}{million}=2.0\frac{parts}{million}$$

Because 2.0 ppmv is ≤ 2000 ppmv, the flare is expected to comply with Rule 4801.

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

- Total sulfur concentration of gas introduced to the flare shall not exceed 1.0 gr-S/100 scf. [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

<u>District is a Lead Agency & GHG emissions increases are from the combustion of fossil fuel other than jet fuels</u>

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

On December 17, 2009, the District's Governing Board adopted a policy, APR 2005, *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency,* for addressing GHG emission impacts when the District is

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

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

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

The GHG emissions increases associated with this project result from the combustion of fossil fuel(s), other than jet fuel, delivered from suppliers subject to the Cap-and-Trade regulation. Therefore, as discussed above, consistent with District Policies APR 2005 and APR 2025, the District concludes that the GHG emissions increases associated with this project would have a less than significant individual and cumulative impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing or former use. Furthermore, the District determined that the activity will not have a significant effect on the environment. Therefore, the District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (Existing Facilities), and finds that the project is exempt per the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

Indemnification Agreement/Letter of Credit Determination

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

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

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC S-2234-251-0 subject to the permit conditions on the attached draft ATC in **Appendix A**.

X. Billing Information

Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
S-2234-251-0	3020-02-H	40 MMBtu/hr flare	$1,238

Appendixes

A: Draft ATC
B: BACT Analysis
C: Quarterly Net Emissions Change
D: ERC Surplus Analysis
E: ERC Withdrawal Calculations
F: HRA Summary
G: Compliance Certification

APPENDIX A
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-2234-251-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES ELK HILLS LLC
MAILING ADDRESS: 900 OLD RIVER RD
BAKERSFIELD, CA 93311

LOCATION: GAS PLANT
SECTION SE-35, T-30S, R-23E
TUPMAN, CA

EQUIPMENT DESCRIPTION:
40 MMBTU/HR CRIMSON ENERGY CE-600 ENCLOSED GROUND-LEVEL FLARE SERVING GAS TREATMENT UNIT #2 (GTU-2)

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 - 2,365 lb, 2nd quarter - 2,365 lb, 3rd quarter - 2,365 lb, and fourth quarter - 2,366 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]
4. GC# 1983} ERC Certificate Number S-5153-2 (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]

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

Brian Clements, Director of Permit Services

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 354 lb, 2nd quarter - 355 lb, 3rd quarter - 355 lb, and fourth quarter - 355 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

6. ERC Certificate Number S-1717-1 (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]

7. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 374 lb, 2nd quarter - 375 lb, 3rd quarter - 375 lb, and fourth quarter -375 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

8. ERC Certificate Number N-1387-5 (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]

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOx emission reduction credits as interpollutant offsets for PM10 emission reduction credits in the following quantity of emissions: 1st quarter - 1,051 lb, 2nd quarter - 1,051 lb, 3rd quarter - 1,051 lb, and fourth quarter - 1,052 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

10. ERC Certificate Numbers N-1079-5, N-1118-5, N-1129-5, C-1333-5, and N-1387-5 (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]

11. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

12. No air contaminant shall be discharged into the atmosphere as a result of operation of the flare for a period or periods aggregating more than three minutes in any one hour which exceeds 5% opacity. [District Rules 2201 and 4102]

13. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]

14. The flame shall be present at all times when combustible gases are vented through the flare. [District Rule 4311]

15. The flare outlet shall shall be equipped with an automatic ignition system, or, operate with a pilot flame present at all times when combustible gases are vented through the flare. The pilot need not be present when the flare is isolated for required flare maintenance. [District Rule 4311]

16. Unless the flare is equipped with a flow-sensing ignition system, the flare shall be equipped and operated with a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an equivalent device, capable of continuously detecting at least one pilot flame. [District Rule 4311]

17. The flare shall use purge gas, as defined by Rule 4311, for purging. [District Rule 4311]

18. The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rule 4311]

19. Flares that the operator can verify, based on permit conditions, that are not capable of producing reportable flaring events pursuant to Section 6.2.2 shall not be required to monitor vent gas flow to the flare. [District Rule 4311]

20. A Reportable Flaring Event is defined as any flaring where more than 500,000 standard cubic feet of vent gas is flared per calendar day, or where sulfur oxide emissions are greater than 500 pounds per calendar day. [District Rule 4311]

CONDITIONS CONTINUE ON NEXT PAGE

21. Flaring is prohibited unless it is consistent with an approved flare minimization plan (FMP), and all commitments listed in that plan have been met. This standard shall not apply if the APCO determines that the flaring is caused by an emergency and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere. [District Rule]

22. The Flare Minimization Plan (FMP) shall include, but is not limited to, the following: 1) A description and technical specifications for the flare and associated knock-out pots, surge drums, water seals and flare gas recovery systems; 2) Detailed process flow diagrams of all upstream equipment and process units venting to the flare, identifying the type and location of all control equipment; 3) A description of equipment, processes, or procedures the operator plans to install or implement to eliminate or minimize flaring and planned date of installation or implementation; 4) An evaluation of prevention measures to reduce flaring that has occurred or may be expected to occur during planned major maintenance activities, including startup and shutdown; 5) An evaluation of preventative measures to reduce flaring that may be expected to occur due to issues of gas quantity and quality. The evaluation shall include an audit of the vent gas recovery capacity of the flare system, the storage capacity available for excess vent gases, and the scrubbing capacity available for vent gases including any limitations associated with scrubbing vent gases for use as a fuel; and shall determine the feasibility of reducing flaring through the recovery, treatment and use of the gas or other means; 6) An evaluation of preventative measures to reduce flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall determine the adequacy of existing maintenance schedules and protocols for such equipment. A failure is recurrent if it occurs more than twice during any 5-year period as a result of the same cause as identified in accordance with Section 6.2.2; 7) Any other information requested by the APCO as necessary for determination of compliance with applicable provisions of this rule. [District Rule 4311]

23. Every five years after the initial Flare Minimization Plan (FMP) submittal, the operator shall submit an updated FMP for the flare to the APCO for approval. The current FMP shall remain in effect until the updated FMP is approved by the APCO. If the operator fails to submit an updated FMP, the existing FMP shall no longer be considered an approved plan. [District Rule]

24. An updated FMP shall be submitted by the operator addressing new or modified equipment, prior to installing the equipment only if: 1) The equipment change would require an Authority To Construct (ATC) and would impact the emissions for the flare; 2) The ATC is deemed complete after June 18, 2009; 3) The modification is not solely the removal or decommissioning of equipment that is listed in the FMP and has no associated increase in flare emissions. [District Rule]

25. When submitting the initial FMP, or updated FMP, the operator shall designate as confidential any information claimed to be exempt from public disclosure under the California Public Records Act, Government Code Section 6250 et seq. and provide a justification for this designation and also submit a separate copy of the document with the information designated confidential redacted. [District Rule]

26. The operator shall notify the APCO of an unplanned flaring event within 24 hours after the start of the next business day or within 24 hours of their discovery, whichever occurs first. The notification shall include the flare source identification, the start date and time, and the end date and time. [District Rule 4311]

27. The operator shall submit an annual report to the APCO that summarizes all Reportable Flaring Events that occurred during the previous 12-month period. Beginning January 1, 2024, the report shall be submitted within 30 days following the end of the previous calendar year. The report shall include: 1) the results of an investigation to determine the primary cause and contributing factors of the flaring event; 2) Any prevention measures considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented; 3) If appropriate, an explanation of why the flaring was an emergency and necessary to prevent accident, hazard or release of vent gas to the atmosphere, or where, due to a regulatory mandate to vent a flare, it cannot be recovered, treated and used as a fuel gas at the facility; and 4) The date, time and duration of the flaring event. [District Rule 4311]

CONDITIONS CONTINUE ON NEXT PAGE

28. Until January 1, 2024, the operator shall submit an annual monitoring report to the APCO within 30 days following the end of each 12-month period. On and after January 1, 2024, and annually thereafter, the operator shall submit the annual monitoring report in an electronic format approved by the District to the APCO within 30 days following the end of each calendar year, which will include: 1) The total volumetric flow of vent gas in standard cubic feet for each day; 2) Hydrogen sulfide content, methane content, and hydrocarbon content of vent gas composition pursuant to Section 6.6; 3) If vent gas composition is monitored by a continuous analyzer or analyzers pursuant to Section 5.14, average total hydrocarbon content by volume, average methane content by volume, and depending upon the analytical method used pursuant to Section 6.3.4, total reduced sulfur content by volume or hydrogen sulfide content by volume of vent gas flared for each hour of the month; 4) If the flow monitor used pursuant to Section 5.13 measures molecular weight, the average molecular weight for each hour of each month; 5) For any pilot and purge gas used, the type of gas used, the volumetric flow for each day and for each month, and the means used to determine flow; 6) Flare monitoring system downtime periods, including dates and times; 7) For each day and for each month provide calculated sulfur dioxide emissions; 8) A flow verification report for each flare subject to this rule. The flow verification report shall include flow verification testing pursuant to Section 6.3.5. [District Rule]

29. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

30. Emission rates from this the flare shall not exceed any of the following limits: NOx - 0.018 lb/MMbtu; CO - 0.008 lb/MMbtu; PM10 - 0.008 lb/MMBtu; or SOx (as SO2) - 0.0018 lb/MMBtu, VOC - 0.0027 lb/MMbtu. [District Rule 2201]

31. Total sulfur concentration of gas introduced to the flare shall not exceed 1.0 gr-S/100 scf. [District Rules 2201 and 4801]

32. The sulfur content of the gas combusted shall be determined using EPA Method 11 or EPA Method 15, or ASTM Method D1072, D4084, or D5504, or an alternative method approved by the District [District Rule 2201]

33. Source testing to measure NOx, CO, and VOC emissions shall be conducted within 60 days of initial start-up. [District Rule 2201]

34. Source testing to measure NOx and VOC emissions shall be conducted at least once every twelve (12) months. [District Rule 2201 and 4311]

35. Source testing to measure CO emissions shall be conducted at least once every twelve (12) months. [District Rule 2201]

36. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]

37. The results of each source test shall be submitted to the District within 60 days after completion of the source test. [District Rule 1081 and 4311]

38. NOx emissions for source test purposes shall be determined using EPA Method 19, EPA Method 7E, or ARB Method 100. [District Rules 1081, 2201, and 4311]

39. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 1081 and 2201]

40. VOC emissions for source test purposes shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case Method 25a may be used, and analysis of halogenated exempt compounds shall be analyzed by EPA Method 18 or ARB Method 422 "Determination of Volatile organic Compounds in Emission from Stationary Sources" shall be determined by EPA Method 18, EPA Method 25, or EPA Method 25A. [District Rule 1081, 2201, and 4311]

41. Stack gas oxygen (O2) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rule 1081, 2201, and 4311]

42. For source test purposes stack gas velocity/volumetric flowrate shall be determined using EPA Method 2 or EPA Method 19, and stack gas moisture content shall be determined using EPA Method 4. [District Rule 1081 and 2201]

43. All source test emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 1081 and 2201]

CONDITIONS CONTINUE ON NEXT PAGE

44. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081 and 2201]
45. The permittee shall determine and record the sulfur content of the gas combusted in the flare at least annually and whenever there is a change in the source of the gas. [District Rule 2201]
46. The sulfur content of the gas combusted shall be determined using EPA Method 11 or EPA Method 15, or ASTM Method D1072, D4084, or D5504, or an alternative method approved by the District. [District Rule 2201]
47. The permittee shall determine and record the higher heating value (HHV) of the gas combusted in the flare at least annually and whenever there is a change in the source of the gas. [District Rule 2201]
48. The Higher Heating Value (HHV) of the gas combusted shall be determined using ASTM D1826, ASTM 1945 in conjunction with ASTM D3588, or an alternative method approved by the District. [District Rule 2201]
49. Permittee shall maintain daily and annual records of the quantity of gas combusted in the flare in standard cubic feet (scf) and the total heating value of the gas combusted in MMBtu. [District Rule 1070, 2201, and 4311]
50. The total heating value of the gas combusted shall be calculated using the quantity of gas combusted and the most recent determination of the Higher Heating Value (HHV) of the gas as required by this permit. [District Rule 2201]
51. Records of the sulfur content and the Higher Heating Value (HHV) in Btu/scf of the gas combusted shall be maintained. [District Rule 1070 and 2201]
52. Permittee shall maintain copies of the source testing result conducted pursuant to Section 6.4.2, a copy of the approved flare minimization plan pursuant to Section 6.5, a copy of annual reports submitted to the APCO pursuant to Section 6.2 and monitoring data collected by the vent gas flow measuring device pursuant to Sections 5.13. [District Rule 4311]
53. All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 1070, 2201, and 4311]

APPENDIX B
BACT Analysis

Top-Down BACT Analysis

S-2234-251-0: 40 MMBtu/hr Crimson Energy CE-600 Enclosed Ground-Level Thermal Oxidizer (Flare)

The District does not currently have an approved BACT Guideline for this source category. The District's BACT Clearinghouse previously included Guideline 1.4.2, which applied to flares incinerating produced gas. However, Guideline 1.4.2 has been rescinded and is currently not an active guideline. Therefore, a project-specific BACT analysis is required.

NOx:

Step 1 - Identify all control technologies

Achieved-In-Practice:

The following references were consulted to determine emission limits and control required to reduce NOx emissions for flares incinerating produced gas.

- EPA RACT/BACT/LAER Clearinghouse
- CARB BACT Clearinghouse
- South Coast AQMD BACT Clearinghouse
- Bay Area AQMD BACT Clearinghouse
- Sacramento Metro AQMD BACT Clearinghouse

Note that SJVAPCD BACT clearinghouse was not consulted because the BACT requirements are out of date and are being revised at this time. When a flare triggers BACT, a case-by-case determination is conducted and the results of that determination are considered BACT for that industry.

The following rules were also consulted:

- South Coast AQMD Rule 1118.1
- Bay Area AQMD Rule 12-12
- Santa Barbara County APCD Rule 359
- SJVAPCD Rule 4311

Survey of BACT Guidelines:

The table below shows NOx data.

Agency	NOx
EPA	The EPA RACT/BACT/LAER clearinghouse does not include general guidelines, only determinations done by individual agencies. None of the determinations are more stringent than the standards shown below; therefore, the EPA data will not be listed.
CARB	The CARB clearinghouse does not include general guidelines, only individual determinations done by individual districts. None of the determinations are more stringent than the standards shown below; therefore, the CARB data will not be listed.
SCAQMD*	15 ppmvd at 3% O2
BAAQMD	No applicable emission limit
SBCAPCD	15 ppmvd at 3% O2; 0.0183 lb/MMBtu

Survey of Applicable Rules:

The table below shows NOx and CO data.

Agency	NOx (lb/MMBtu)
SCAQMD Rule 1118.1	0.018
BAAQMD Rule 12-12	No applicable emission limit
SBCAPCD Rule 359	0.1330
SJVAPCD Rule 4311	0.018
EPA	40 CFR Part 60 Subpart A does not contain NOx or CO emission limits for the proposed flare unit.
CARB	No Rules

From the review of the above data, the following most stringent level of emissions is considered achieved-in- practice for a flare at oil and gas operations or chemical operations.

NOx: 0.018 lb/MMBtu/hr

<u>Technologically Feasible:</u>
None

<u>Alternate Basic Equipment:</u>
None

Step 2 - Eliminate technologically infeasible options

There is no technologically infeasible option.

Step 3 - Rank remaining options by control effectiveness

NOx emissions limit:

1) 0.018 lb/MMBtu
2) 0.01183 lb/MMBtu
3) 0.1330 lb/MMBtu

Step 4 - Cost Effectiveness Analysis

There is no technically feasible option or alternative basic equipment listed in Step 3 (above). Therefore, no further discussion is required.

Step 5 – Select BACT

BACT for the proposed flare is to achieve 0.018 lb/MMBtu/hr or less NOx emissions during normal source operation. The applicant has proposed to comply with this standard. Therefore, BACT requirements are satisfied.

CO:

Step 1 - Identify all control technologies

Achieved-In-Practice:

The following references were consulted to determine emission limits and control required to reduce CO emissions for flares incinerating produced gas:

- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT Clearinghouse

Note that SJVAPCD BACT clearinghouse was not consulted because the BACT requirements are out of date and are being revised at this time. When a boiler triggers BACT, a case-by-case determination is conducted and the results of that determination are considered BACT for that industry.

The following Rules were also consulted:

- South Coast AQMD Rule 1118.1
- Bay Area AQMD Rule 12-12
- Santa Barbara County APCD Rule 359
- SJVAPCD Rule 4311

Survey of BACT Guidelines:
Since NOx and CO are related, the analysis will combine NOx and CO. The table below shows NOx and CO data.

Agency	CO
EPA	The EPA RACT/BACT/LAER clearinghouse does not include general guidelines, only determinations done by individual agencies. None of the determinations are more stringent than most stringent standards shown below so the EPA data will not be listed.
CARB	The CARB clearinghouse does not include general guidelines, only individual determinations done by individual districts. None of the determinations are more stringent than most stringent standards shown below so the CARB data will not be listed.
SCAQMD*	10 ppmvd at 3% O2
BAAQMD	No applicable emission limit
SBCAPCD	10 ppmvd at 3% O2; 0.0074 lb/MMBtu

Survey of Applicable Rules:
The table below shows CO data.

Agency	CO (lb/MMBtu/hr)
SCAQMD Rule 1118.1	0.01
BAAQMD Rule 12-12	No applicable emission limit
SBCAPCD Rule 359	No applicable emission limit
SJVAPCD Rule 4311	No applicable emission limit
EPA	40 CFR Part 60 Subpart A does not contain NOx or CO emission limits for the proposed flare unit.
CARB	No Rules

From the review of the above data, the following level of emissions is considered achieved-in-practice for a flare at oil and gas operations or chemical operations.

CO: 0.0076 lb/MMBtu/hr*
* SBCAPCD contains AIP emission limit of 0.0074 lb/MMBtu/hr, however 0.0076 lb/MMbtu/hr will be used to be more conservative.

Technologically Feasible:
None

Alternate Basic Equipment:
None

Step 2 - Eliminate technologically infeasible options

There is no technologically infeasible option.

Step 3 - Rank remaining options by control effectiveness

CO emissions limit:

1) 0.0076 lb/MMBtu
2) 0.01 lb/MMBtu

Step 4 - Cost Effectiveness Analysis

There is no technically feasible option or alternative basic equipment listed in Step 3 (above). Therefore, no further discussion is required.

Step 5 – Select BACT

BACT for the proposed flare is to achieve 0.0076 lb/MMBtu/hr or less CO emissions during normal source operation. The applicant has proposed to comply with this standard. Therefore, BACT requirements are satisfied.

SOx:

Step 1 - Identify all control technologies

Achieved-in-Practice:
SO_x: Use of natural gas fuel with sulfur content that does not 1.0 gr-S/100 scf

Technologically Feasible:
None

Alternate Basic Equipment:
None

Step 2 - Eliminate technologically infeasible options

There is no technologically infeasible option.

Step 3 - Rank remaining options by control effectiveness

1. Use of PUC quality natural gas fuel

Step 4 - Cost Effectiveness Analysis

There is no technically feasible option or alternative basic equipment listed in Step 3 (above). Therefore, no further discussion is required.

Step 5 – Select BACT

BACT for the proposed flare is to use PUC quality natural gas fuel. The applicant has proposed to use PUC quality natural gas. Therefore, BACT requirements are satisfied.

PM10:

Step 1 - Identify all control technologies

Achieved-in-Practice:
PM_{10}: Smokeless combustion with visible emissions less than 5% opacity, except for a period or periods aggregating three minutes or less in any one hour.

Technologically Feasible:
None

Alternate Basic Equipment:
None

Step 2 - Eliminate technologically infeasible options

There is no technologically infeasible option.

Step 3 - Rank remaining options by control effectiveness

1. Smokeless combustion with visible emissions less than 5% opacity, except for a period or periods aggregating three minutes or less in any one hour.

Step 4 - Cost Effectiveness Analysis

There is no technically feasible option or alternative basic equipment listed in Step 3 (above). Therefore, no further discussion is required.

Step 5 – Select BACT

BACT for the proposed flare is to have smokeless combustion with visible emissions less than 5% opacity, except for a period or periods aggregating three minutes or less in any one hour. The applicant has proposed to use a smokeless flare. Therefore, BACT requirements are satisfied.

VOC:

Step 1 - Identify all control technologies

Achieved-In-Practice:

The following references were consulted to determine emission limits and control required to reduce VOC emissions for flares incinerating produced gas:

- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT Clearinghouse

Note that SJVAPCD BACT clearinghouse was not consulted because the BACT requirements are out of date and are being revised at this time. When a boiler triggers BACT, a case-by-case determination is conducted and the results of that determination are considered BACT for that industry.

The following Rules were also consulted:

- South Coast AQMD Rule 1118.1
- Bay Area AQMD Rule 12-12
- Santa Barbara County APCD Rule 359
- SJVAPCD Rule 4311

Survey of BACT Guidelines:
Since NOx and CO are related, the analysis will combine NOx and CO. The table below shows NOx and CO data.

Agency	VOC
EPA	The EPA RACT/BACT/LAER clearinghouse does not include general guidelines, only determinations done by individual agencies. None of the determinations are more stringent than most stringent standards shown below so the EPA data will not be listed.
CARB	The CARB clearinghouse does not include general guidelines, only individual determinations done by individual districts. None of the determinations are more stringent than most stringent standards shown below so the CARB data will not be listed.
SCAQMD	10 ppmvd at 3% O2;
BAAQMD	No applicable emission limit
SBCAPCD	10 ppmvd at 3% O2 (as methane); 0.0042 lb/MMBtu

Survey of Applicable Rules:
The table below shows VOC data.

Agency	VOC (lb/MMBtu)
SCAQMD Rule 1118.1	0.008
BAAQMD Rule 12-12	No applicable emission limit
SBCAPCD Rule 359	0.0027
SJVAPCD Rule 4311	0.008
EPA	40 CFR Part 60 Subpart A does not contain VOC emission limits for the proposed flare unit.
CARB	No Rules

From the review of the above data, the following level of emissions is considered achieved-in-practice for a flare at oil and gas operations or chemical operations.

VOC: 0.0027 lb/MMBtu/hr

Technologically Feasible:
None

Alternate Basic Equipment:
None

Step 2 - Eliminate technologically infeasible options

There is no technologically infeasible option.

Step 3 - Rank remaining options by control effectiveness

0.0027 lb/MMBtu/hr

Step 4 - Cost Effectiveness Analysis

There is no technically feasible option or alternative basic equipment listed in Step 3 (above). Therefore, no further discussion is required.

Step 5 – Select BACT

BACT for the proposed flare is to achieve 0.0027 lb/MMBtu/hr or less VOC emissions during normal source operation. The applicant has proposed to comply with this standard. Therefore, BACT requirements are satisfied

APPENDIX C
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:

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.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly} = PE2_{annual} \div 4$ quarters/year
$PE1_{quarterly} = PE1_{annual} \div 4$ quarters/year

QNEC NO_x = 6,307/4 – 0/4 = 1,576.75
QNEC SO_x = 999/4 – 0/4 = 157.75
QNEC PM_{10} = 2,803/4 – 0/4 = 700.75
QNEC CO = 2,803/4 – 0/4 = 700.75
QNEC VOC = 946/4 – 0/4 = 236.5

Quarterly NEC [QNEC]			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	1,576.75	0	1,576.75
SO_X	249.75	0	249.75
PM_{10}	700.75	0	700.75
CO	700.75	0	700.75
VOC	236.5	0	236.5

APPENDIX D
ERC Surplus Analysis

San Joaquin Valley Air Pollution Control District
Surplus ERC Analysis

Facility Name:	California Resources Elk Hills, LLC	**Date:**	June 15, 2023
Mailing Address:	900 Old River Road Bakersfield, CA 93311	**Engineer:**	Adegoke Oba
		Lead Engineer:	Steven Davidson
Contact Person:	Douglas Shaffer		
Telephone:	661-429-5972		
ERC Certificate(s) #:	S-5153-2 and S-1717-1		
ERC Surplus Project #:	N/A		
ATC Project #:	S-1234723		

I. Proposal

California Resources Elk Hills, LLC (CREH) is proposing the use of the following Emission Reduction Credit (ERC) certificates to meet the federal offset requirements of District project S-1234723.

Proposed ERC Certificates	
Certificate #	**Criteria Pollutant**
S-5153-2	NOx
S-1717-1	VOC

The purpose of this analysis is to ensure that the emission reductions on these ERC certificates are surplus of all applicable Federal requirements; therefore, this analysis establishes the surplus value of the ERC certificates as of the date of this analysis. The current face value and surplus value of the ERC certificates evaluated in this analysis are summarized in the following tables:

Criteria Pollutant: NOx

ERC Certificate S-5132-2				
Pollutant	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Current Value	6,160	6,160	6,160	6,159
Surplus Value	6,160	6,160	6,160	6,159

Criteria Pollutant: VOC

ERC Certificate S-1717-1				
Pollutant	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Current Value	1,239	3,804	4,274	1,639
Surplus Value	1,239	3,804	4,274	1,639

II. Individual ERC Certificate Analysis

ERC Certificate S-5153-2

A. ERC Background

Criteria Pollutant: NOx

ERC Certificate S-5153-2 is a certificate that was split out from parent ERC Certificate S-4211-2. Original ERC Certificate S-4211-2 was issued to California Resources Elk Hills LLC (facility #: S-2234) on March 14, 2013 under project S-1133368. The ERCs were generated from the shutdown of two natural gas-fired lean-burn IC engines (permit units S-2234-27 and '-28) and one natural gas-fired rich-burn IC engine (permit unit S-2234-127). The following table summarizes the values of the original parent certificate and the current value of the subject certificate proposed to be utilized as a part of the current District project:

ERC Certificate S-5153-2				
Pollutant	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original Value of Parent Certificate S-4211-2	13,364	14,303	18,022	17,508
Current Value of ERC Certificate S-5153-2	6,160	6,160	6,160	6,159

B. Applicable Rules and Regulations at Time of Original Banking Project

Based on the application review for the original ERC banking project, the following rules and regulations were evaluated to determine the surplus value of actual emission reductions of NOx generated by the reduction project.

1. District Rules

Rule 2301 Emission Reduction Credit Banking (1/19/12)

The application review for the original ERC banking project demonstrated that the ERC

credit complied with District Rule 2301 requirements at the time it was issued.

Rule 4701 Internal Combustion Engines - Phase 1 (8/21/03)
Rule 4702 Internal Combustion Engines (8/18/11)

The application review for the original ERC banking project demonstrated that the engines had NOx limits that were below the limits in the Rules listed above.

2. Federal Rules and Regulations

There were no applicable federal rules or regulations identified that applied at the time of this original ERC banking action; therefore, no further discussion is required.

C. New or Modified Rule and Regulations Applicable to the Original Banking Project

All District and federal rules and regulations that have been adopted or amended since the date the original banking project was finalized will be evaluated below:

1. District Rules:

District Rule 4702 has been amended twice on November 14, 2013 and on August 19, 2021. However, changes to applicable emission limits do not take place until 12/31/2023. Therefore, the original NOx emission reductions continue to be surplus of all applicable District Rule requirements.

2. Federal Rules and Regulations:

40 CFR Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. Pursuant to § 60.4230, three engines in this project are subject to this subpart as these are modified after June 12, 2006.

Engines ‘-27 and ‘-28 were 4,000 bhp and engine ‘-127 had a horsepower rating of 1,834 bhp. Table 1 of this subpart below shows the applicable NOx emission standards for this project.

Engine Type and Fuel	Maximum Engine Power	Manufacture Date	Emission Standards	
			g/HP-hr	ppmvd at 15% O2
			NOx	NOx
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP ≥500	7/1/2007	2.0	160

Based on the permit conditions, engines '-27 and '-28 had NOx limits of 1.65 g/bhp-hr (136 ppmv @ 15% O2) and engine '-127 had a NOx limit of 5 ppmv @15% O2, which are below the limits in this subpart. Therefore, the emission reductions continue to be surplus of this subpart.

<u>40 CFR Part 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines</u>

This subpart applies to stationary reciprocating internal combustion engines (RICE) at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. This subpart does not have any requirements for NOx emissions. Therefore, the emission reductions continue to be surplus of this subpart.

D. Surplus at Time of Use Adjustments to ERC Quantities

As demonstrated in the section above, Rule 4702 has no rules and regulations applicable to this permit unit in the original banking project have been amended or adopted since the date on which the original banking project was finalized that would impact the surplus value of this ERC. Therefore, the original NOx emission reductions continue to be surplus of all applicable District and Federal Rules and Regulations, and therefore no discounting to the ERC values are necessary for surplus at time of use considerations

E. Surplus Value of ERC Certificate

The emissions continue to be Surplus of all District and Federal Rules and Regulations; therefore, no adjustments to the ERC values are necessary.

ERC Certificate S-5153-2 – Criteria Pollutant NOx					
		1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
(A)	Current ERC Quantity	6,160	6,160	6,160	6,159
(B)	Percent Discount	**0%**	**0%**	**0%**	**0%**
(C) = (A) x [1 – (B)]	**Surplus Value**	6,160	6,160	6,160	6,159

ERC Certificates S-1717-1

A. ERC Background

Criteria Pollutant: VOC

ERC Certificate S-1717-1 is a certificate that was split out from parent ERC Certificate S-219-1 Original ERC Certificate S-219-1 was issued to California Resources Elk Hills LLC on 7/11/94 under project S-920066. The ERCs were generated from adding vapor recovery to forty seven 500 barrel crude oil storage tanks, twelve 1,000 barrel crude oil storage tanks, and five 2,000 barrel surge tanks. The following table summarizes the values of the original parent certificate and the current value of the subject certificate proposed to be utilized as a part of the current District analysis:

ERC Certificate S-1717-1				
Pollutant	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original Value of Parent Certificate S-219-1	41,361	97,399	115,895	49,704
Current Value of ERC Certificate S-1717-1	1,239	3,804	4,274	1,639

B. Applicable Rules and Regulations at Time of Original Banking Project

Based on the application review for the original ERC banking project, the following rules and regulations were evaluated to determine the surplus value of actual emission reductions of VOCs generated by the reduction project.

1. District Rules

Rule 2301 - Emission Reduction Credit Banking (12/17/92)

The application review for the original ERC banking project demonstrated that the ERC credit complied with District Rule 2301 requirements at the time it was issued.

Rule 411 Organic Liquid Storage (Kern County APCD)

The application review for the original ERC banking project demonstrated that the crude oil storage tanks were in compliance with the Rules listed above at the time of the application. Therefore, the original VOC emission reductions were surplus of all applicable District Rule requirements.

2. Federal Rules and Regulations

There were no applicable federal rules or regulations identified that applied at the time of this original ERC banking action; therefore, no further discussion is required.

C. New or Modified Rule and Regulations Applicable to the Original Banking Project

All District and federal rules and regulations that have been adopted or amended since the date the original banking project was finalized will be evaluated below:

1. District Rules:

Rule 4623 Storage of Organic Liquids (5/19/05)

The requirements of Rule 4623 would have been applicable to the tanks modified with vapor control in the original ERC banking project. Rule 4623 was last amended by the District on May 19, 2005 and added to the District's SIP on September 13, 2005.

The ERC banking project calculated emissions for the tanks in two parts corresponding to Kern Co. APCD Rule 411 Exempt and Nonexempt Tanks. The HAE and AER calculations for project 920066 (prior to reduction of the ERC amount in December 1995) are shown below. Please note that the below calculations are solely to determine the surplus percentage of the subject ERC.

From 920066 ERC Banking Project

D. Actual Emissions Reductions:

Actual emissions reductions due to installation of a control device are calculated as:

AER = HAE x CE

where CE^1 = 0.99 - 0.75 = 0.24 (Rule 411 exempt tanks)
where CE^2 = 0.99 - 0.95 = 0.04 (Rule 411 non-exempt tanks)

	Rule 411 Exempt Tanks (lb/q)				Rule 411 Non-Exempt Tanks (lbs/q)			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
HAE	552317	755906	824319	589517	610151	821695	905690	659758
x CE^1	132556	181417	197837	141484	*	*	*	*
x CE^2	*	*	*	*	24406	32868	36228	26390

Part 1: Twelve 1,000 barrel and five 2,000 barrel Kern Co. APCD Rule 411 non-exempt tanks were taken from 95% control to 99% control of 9.3 psia TVP oil. The historical actual emissions (uncontrolled emissions reductions contributing to ERCs) from these tanks, as calculated below, were 2,997,294 lb/yr.

Rule 411 nonexempt tanks, HAE discounted by 95 to 99% VC eff

610,151+ 821,695 + 905,690 + 659,758 = 2,997,294 (HAE)

24,406 + 32,868 + 36,228 + 26,390 = 119,892 (AER, 0.04 x 2,997,294)

Rule 4623 Table 1 requires tanks of this size and TVP to install vapor control with 95% control. Therefore, no further discounting is necessary.

Part 2: Forty seven 500 barrel Kern Co. APCD d Rule 411 exempt fixed roof tanks were taken from 75% vapor control to 99% vapor control of 9.3 psia TVP oil. The historical actual emissions were 2,722,059 lb/yr (uncontrolled).

Table 1 requires tanks of this size and TVP to at least implement a floating roof tank (control of 95%). Therefore, discounting is necessary. The additional discounting for Rule 4623 is calculated in Section D of this analysis.

Part 2 (Rule 411 exempt tanks, HAE discounted by 0.24, 75% to 99% VC eff

552,317 + 755,906 + 824,319 + 589,517 = 2,722,059 (HAE)

132,556 + 181,417 + 197,837 + 141,484 = 653,294 (AER, 0.24 x 2,722,059))

2. Federal Rules and Regulations:

40 CFR Part 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984

Rule 4623 has broader applicability and in certain aspects establishes more effective standards than the NSPS contained in 40 CFR 60 Subparts Kb, for petroleum liquid storage vessels. Therefore, the emission reductions continue to be surplus of this subpart.

40 CFR Part 63 Subpart HH National Emission Standards for Hazardous Air Pollutants: Oil and Natural Gas Production Facilities

This subpart applies to Oil and Natural Gas Production equipment located at a major source of Hazardous Air Pollutants (HAP) emissions. Rule 4623 establishes VOC capture and control efficiency requirements in harmony with MACT standards established pursuant to 40 CFR Part 63 Subpart HH for oil and gas storage tanks.

Therefore, the emission reductions continue to be surplus of this subpart.

3. Surplus at Time of Use Adjustments to ERC Quantities

As demonstrated in the section above, rules and regulations applicable to permit unit(s) in the original banking project have been adopted or amended since the date the original banking project was finalized. The emissions limits from these new/modified rules and regulations will be compared to the pre and post-project emission limits of each permit unit included in the original banking project to determine any discounting of the original surplus value of emission reductions due to the new/modified rule or regulation.

The amount of ERCs issued from each permit unit in the original banking project, the percentage of that amount which was discounted due to a new/modified rule or regulation, and the current surplus value of the amount of ERCs from each permit unit is calculated in the table(s) below:

Note that because control efficiency is what is required by the rules, discounting is based on emission factors. Therefore, EF = (1-CE)

Surplus Value Calculations for Permit Unit S-1717-1 Part 2 Tanks as discussed above		
(A) Emission Reductions from Part 2 tanks contributing to HAE in original banking action	2,722,059	lb/year
Pre-Project (EF1)	0.25	% Emitted
Post-Project (EF2)	0.01	% Emitted
Most Stringent Applicable Rule (EF_{Rule}): Rule 4623 Table 1	0.05	% Emitted
(B) Percent Discount*	83.3%	--
Surplus Reductions Contributing to ERC for Part 2 tanks (A) x [1- (B)]	454,584	lb/year

*If $EF_{Rule} \leq EF2$, Percent Discount = 100%, or
If $EF_{Rule} > EF1$, Percent Discount = 0%, otherwise,
Percent discount = $(EF1 - EF_{Rule}) \times 100 \div (EF1 - EF2)$
= $[(0.25 - 0.05)/(0.25 - 0.01)] \times 100$
= 83.3%

Surplus reductions = 2,722,059 * (1 - 0.833)
= <u>454,584 lb/yr</u>

Total Discount Percentage for ERC Certificate

The total percentage ERC S-1717-1 is discounted by due to new and modified rules and regulations is summarized in the following table:

Total Percent Discount Summary for ERC Certificate S-1717-1			
Permit(s)	Amount of ERCs originally issued (lb/year)	Percent Discount	Surplus Value (lb/year)
Part 1	2,997,294	0%	2,997,294
Part 2	2,722,059	83.3%	454,584
Total	5,719,353	--	3,451,878
Total Percent Discount*		**39.6%**	

* Total Percent Discount = [(Total Amount of ERCs Issued – Total Surplus Value) ÷ Total Amount of ERCs Issued] x 100

D. Surplus Value of ERC Certificate

As shown in the previous section, the surplus at time of use value of this ERC certificate will be adjusted. The current face value of the ERC certificate, the percent the current value is discounted by based on the surplus analysis in the previous section, and the current calculated surplus value of the ERC certificate is shown in the table below:

ERC Certificate S-1717-1 – Criteria Pollutant VOC					
		1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
(A)	Current ERC Quantity	1,239	3,804	4,274	1,639
(B)	Percent Discount	**39.6%**	**39.6%**	**39.6%**	**39.6%**
(C) = (A) x [1 – (B)]	**Surplus Value**	748	2,298	2,581	990

APPENDIX E
ERC Withdrawal Calculations

NO_x	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC S-5132-2	6,160	6,160	6,160	6,159
Offsets Required (Includes distance offset ratio)	2,365	2,365	2,365	2,366
Amount Remaining	3,795	3,795	3,795	3,793
Credits reissued under ERC S-YYYY-2	3,795	3,795	3,795	3,793

SO_x	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC N-1118-5	450	456	456	455
Offsets Required (Includes distance offset ratio)	374	375	375	375
Amount Remaining	76	81	81	80
Credits reissued under ERC N-YYYY-5	76	81	81	80

PM_{10}	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC C-1335-5	280	280	280	280
ERC N-1079-5**	0	0	0	936**
ERC N-1118-5	250	250	250	250
ERC N-1129-5	212	212	212	212
ERC N-1387-5*	76	81	81	80
ERC N-1531-5	2,000	2,000	2,000	2,000
Offsets Required (Includes distance offset ratio)	3,048	3,049	3,049	3,049
Amount Remaining	0	0	0	17
Credits reissued under ERC S-YYYY-5	0	0	0	17

* After withdrawal for SOx offsets

** Pursuant to Rule 2201, Section 4.13.7, PM that occurred from October through March, inclusive, may be used to offset increases in PM during any period of the year.

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC S-1717-1	748	2,298	2,581	990
Offsets Required (Includes distance offset ratio)	354	355	355	355
Amount Remaining	394	1,943	2,226	635
Credits reissued under ERC C-YYYY-1	394	1,943	2,226	635

APPENDIX F
HRA Summary

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

To:	Ade Oba – Permit Services
From:	Michael Scott – Technical Services
Date:	July 7, 2023
Facility Name:	CALIFORNIA RESOURCES ELK HILLS LLC
Location:	GAS PLANT, SECTION SE-35, T-30S, R-23E, TUPMAN
Application #(s):	S-2234-251-0
Project #:	S-1224723

Summary

Risk Management Review (RMR)

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
251-0	0.05	0.00	0.00	3.77E-07	No	Yes
Project Totals	0.05	0.00	0.00	3.77E-07		
Facility Totals	>1	0.26[1]	0.02[1]	3.00E-06[1]		

Notes:
2. Facilities S2234 and S9168 are the same stationary source so their facility totals are aggregated. Please see

Ambient Air Quality Analysis (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[3]	Pass[3]
PM2.5				Pass[4]	Pass[4]

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 # 251-0

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.

Project Description

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

- Unit -251-0: 40 MMBTU/HR CRIMSON ENERGY CE-600 ENCLOSED GROUND-LEVEL THERMAL OXIDIZER (FLARE) SERVING GAS TREATMENT UNIT #2 (GTU-2)

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 than 1.0. If a preliminary analysis demonstrates that either the units', 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 a 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 units that exceed a cancer risk of one in a million, Toxic Best Available Control Technology (TBACT) must be implemented.

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

- Fuel process rates for the proposed operation were provided by the Permit Engineer. These usage rates were speciated into toxic air contaminants using the 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion and emission factors from the 2005 report, Final Report Test of TDA's Direct Oxidation Process for Sulfur Recovery.

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 2004-2008 from Fellows (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**
251-0	1	NG/WG Rate	MMscf	0.04	350.4

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
251-0	NG/WG Flare	10.67	1,255	0.58	2.44	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	2021
NOx	Bakersfield-California	Kern	Bakersfield	2021
PM10	Bakersfield-California	Kern	Bakersfield	2021
PM2.5	Bakersfield-California	Kern	Bakersfield	2021
SOx	Fresno - Garland	Fresno	Fresno	2021

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**
251-0	1	0.72	0.114	0.32	0.32	0.32

Emission Rates (lbs/year)						
Unit ID	**Process**	**NOx**	**SOx**	**CO**	**PM10**	**PM2.5**
251-0	1	6,307	999	2,803	2,803	2,803

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 2004-2008 from Fellows (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**
251-0	NG/WG Flare	10.67	1,255	0.58	2.44	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.

Attachments

A. Modeling request from the project engineer

B. Additional information from the applicant/project engineer

C. Prioritization score w/ toxic emissions summary

D. Facility Summary

E. AAQA results

APPENDIX G
Compliance Certification

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

☒ SIGNIFICANT PERMIT MODIFICATION
☐ MINOR PERMIT MODIFICATION
☐ ADMINISTRATIVE AMENDMENT

COMPANY NAME: California Resources Elk Hills LLC	FACILITY ID: S-2234
1. Type of Organization: ☒ Corporation ☐ Sole Ownership ☐ Government ☐ Partnership ☐ Utility	
2. Owner's Name:	
3. Agent to the Owner:	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial **applicable** circles for confirmation):

(O) Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

(O) Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

(O) Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

(O) Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true, accurate, and complete.

(O) For minor modifications, this application meets the criteria for use of minor permit modification procedures pursuant to District Rule 2520.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

Signature of Responsible Official — Date: 12/09/2022

Juan Campos
Name of Responsible Official (please print)

Director of HSE
Title of Responsible Official (please print)

Application for GTU Incinerator