



**FEB 24 2014**

Kristine Boyer  
Crimson Resource Management  
5001 California Ave Suite 206  
Bakersfield CA 93309

**Re Notice of Preliminary Decision - Authority to Construct**  
**Facility Number S-2918**  
**Project Number S-1133978**

Dear Ms Boyer

Enclosed for your review and comment is the District's analysis of Crimson Resource Management's application for an Authority to Construct for a 32.5 MMBtu/hr emergency flare, at the Panama 14 lease within the permittee's Kern County Light Oil Central stationary source

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Homero Ramirez of Permit Services at (661) 392-5616.

Sincerely,



David Warner  
Director of Permit Services

DW HAR/st

Enclosures

cc Mike Tollstrup CARB (w/ enclosure) via email

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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**San Joaquin Valley Air Pollution Control District**  
**Authority to Construct Application Review**  
Emergency Flare

Facility Name	Crimson Resource Management	Date	February 5, 2014
Mailing Address	5001 California Ave, Suite 206 Bakersfield, CA 93309	Engineer	Homero Ramirez
		Lead Engineer	Allan Phillips
Contact Person	Kristine Boyer		
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Application #	S-2918-72-0		
Project #	S-1133978		
Deemed Complete	November 4 2013		

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## **I Proposal**

Crimson Resource Management requests an Authority to Construct (ATC) permit for a 32.5 MMBtu/hr emergency flare to provide additional flaring capacity to its 12 MMBtu/hr produced gas-fired flare (S-2918-62)<sup>1</sup>. The proposed flare will be authorized to operate solely during emergencies as defined in Rule 4311 Section 3.7.

## **II Applicable Rules**

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4311	Flares (6/18/09)
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

<sup>1</sup> ATC S 2918 62 0 for the 12 MMBtu/hr produced gas fired flare has not been converted yet. ATC S 2918 72 0 proposed by this project will have a condition stating that ATC S 2918 62 0 shall be implemented prior to or concurrently with 72 0.

### **III Project Location**

The equipment will be located at the Panama 14 Lease within Section 14 Township 30S, Range 27E in the permittee's Kern County Light Oil Central stationary source. 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**

Crimson Resource Management produces light crude oil from their light oil central stationary source. The produced fluids are sent through several vessels to facilitate separation of water, oil, and gases.

Light oil is produced from oil wells. Gas produced at the leases is normally sent to the gas plant or sales line. Flaring or gas combustion occurs when the sales line or gas plant compressor is down. The proposed new emergency flare will act as a backup emergency combustion device to 12 MMBtu/hr produced gas-fired flare S-2918-62.

### **V Equipment Listing**

S-2918-72-0 32.5 MMBTU/HR AIR-ASSIST NATIONAL AIR OIL BURNER COMPANY MODEL NAFV EMERGENCY FLARE WITH AUTOMATIC SPARK-IGNITED PILOT, COMBUSTION AIR BLOWER, AND GAS FLOW METER

### **VI Emission Control Technology Evaluation**

The flare will have an air-assisted tip and an automatic spark-ignited pilot. The tip uses large amounts of air in order to increase turbulent mixing and promote complete combustion of hydrocarbons. This reduces carbon monoxide (CO) emissions and smoke/particulate matter (PM10) which are caused by high temperatures and incomplete combustion.

The VOC combustion efficiency for flares is typically greater than 99%. The gas combusted in the flare is expected to have a very low sulfur content (1.0 gr S/100 scf maximum) as proposed by the applicant.

The proposed emergency flare is only authorized for use during an emergency situation as defined by Rule 4311 Section 3.7 and is not authorized for operation for testing or maintenance purposes.

## VII General Calculations

### A Assumptions

- Maximum emergency operating schedule 24 hours/day
- Non-emergency operating schedule 0 hours/year
- Maximum produced gas flow rate is 32.5 MMBtu/hr
- Gross heating value of produced gas is 1,200 Btu/scf (based on other produced gas flare application documentation submitted for S-2918-62) See gas analysis in Appendix B
- Produced gas F-factor is 8,600 dscf/MMBtu at 60 degrees F (per gas analysis in Appendix B)
- Molar specific volume of air is 379.5 scf/lb-mole
- The sulfur content of the gas being incinerated by the combustion device shall not exceed 5 ppmv (as H<sub>2</sub>S) (pursuant to the limit on flare S-2918-62)
- There are no pilot emissions as the flare has an automatic (flow sensing) ignition system

### B Emission Factors

Pursuant to District FYI-83 (Flare Emission Factors), the following emission factors from EPA AP-42 section 13.5 Industrial Flares (9/91) represent best data for flares located at oil exploration and production operations, refineries, chemical plants, gas plants, and other petroleum related industries. The subject flare is operated in an oil production operation, therefore, the emission factors from FYI-83 will be used.

Emission Factors		
	lb/MMBtu	Source
NO <sub>x</sub>	0.068	AP-42/FYI-83
SO <sub>x</sub>	0.0007 *	5 ppmv H <sub>2</sub> S limit in fuel (equivalent to 0.31 gr-S/100 dscf)
PM <sub>10</sub>	0.008 **	AP-42/FYI-83
CO	0.37	AP-42/FYI-83
VOC	0.063	AP-42/FYI-83

$$\frac{0.31 \text{ gr S}}{100 \text{ scf}} \left( \frac{\text{lb}}{7,000 \text{ gr}} \right) \frac{\text{scfu}}{1,200 \text{ Btu}} \left( \frac{10^6 \text{ Btu}}{\text{MMBtu}} \right) \frac{64 \text{ lb SO}_2}{32 \text{ lb S}} = 0.0007 \frac{\text{lb SO}_2}{\text{MMBtu}}$$

\*\* Flare triggers and complies with BACT for PM<sub>10</sub> therefore in accordance with FYI 83 the PM<sub>10</sub> emissions factor is equal to 0.008 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)**

The potential to emit for the flare is calculated as follows (based 32.5 MMBtu/hr limit and 24 hr/day of operation), and summarized in the table below (annual emissions are not quantified for emissions resulting solely from emergency operation)

$$\left(\frac{32.5 \text{ MMBtu}}{\text{hr}}\right) \left(\frac{24 \text{ hr}}{\text{day}}\right) \left(\frac{\text{lb EF}}{\text{MMBtu}}\right) = \frac{\text{lb EF}}{\text{day}}$$

<b>Post Project Potential to Emit (PE2)</b>		
	Daily Emissions (lb/day)	Annual Emissions (lb/year) <sup>2</sup>
NO <sub>x</sub>	53.0	0
SO <sub>x</sub>	0.5	0
PM <sub>10</sub>	6.2	0
CO	288.6	0
VOC	49.1	0

**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

<sup>2</sup> Annual emissions will not be quantified for the emergency flare as they are not quantified for emissions resulting solely from emergency operation

<b>Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)</b>					
<b>Permit Unit</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>
S-2918-1-7	7 834	81	2 327	42 624	7 258
S-2918-2-3 <sup>(3)</sup>	4 132	45	329	624	1 460
S-2918-3-4 (ATC -3-6)	0	0	0	0	183
S-2918-4-4	0	0	0	0	183
S-2918-5-4	0	0	0	0	183
S-2918-15-4	0	0	0	0	183
S-2918-16-4	0	0	0	0	475
S-2918-26-4	0	0	0	0	263
S-2918-27-5	0	0	0	0	47
S-2918-28-5	0	0	0	0	47
S-2918-29-6	0	0	0	0	876
S-2918-30-3	0	0	0	0	694
S-2918-31-4	0	0	0	0	7 573
S-2918-45-1	0	0	0	0	N C
S-2918-46-4	0	0	0	0	1 852
S-2918-50-3	0	0	0	0	1 314
S-2918-51-0	0	0	0	0	
S-2918-52-0	0	0	0	0	
S-2918-53-0	0	0	0	0	
S-2918-54-0	1 840	6 132	88	350	88
S-2918-55-3	0	0	0	0	3 493
S-2918-56-3	0	0	0	0	4 987
S-2918-58-3	0	0	0	0	4 987
S-2918-59-3	0	0	0	0	4 987
ATC S-2918-60-1	0	0	0	0	110
ATC S-2918-61-0	0	0	0	0	110
ATC S-2918-62-0 <sup>(1)</sup>	1 971	77	2 212	1 095	876
S-2918-63-0	0	0	0	0	3 753
S-2918-64-0	0	0	0	0	3 753
S-2918-65-0	0	0	0	0	8,403
S-2918-66-0	0	0	0	0	2,709
S-2918-67-0	0	0	0	0	15 542
S-2918-68-0	0	0	0	0	15 542
S-2918-69-0	0	0	0	0	21 681
S-2918-70-0	3 584	132	422	19 499	3 320
S-2918-71-0	0	0	0	0	11 455
<b>SSPE1</b>	<b>15 229</b>	<b>6 422</b>	<b>5 049</b>	<b>63 568</b>	<b>127 511</b>

N C = not calculated (insufficient information to calculate emissions)

<sup>3</sup> ATC S 2918 62 replaces PTO S 2918 2 Since the ATC has not been implemented yet for each of the pollutants the higher potential emissions of the two emission units will be used to calculate the SSPE

#### 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

<b>Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-2918-1-7	7 834	81	2 327	42 624	7 258
S-2918-2-3	1 132	15	329	624	1 460
S-2918-3-4 (ATC -3-6)	0	0	0	0	183
S-2918-4-4	0	0	0	0	183
S-2918-5-4	0	0	0	0	183
S-2918-15-4	0	0	0	0	183
S-2918-16-4	0	0	0	0	475
S-2918-26-4	0	0	0	0	263
S-2918-27-5	0	0	0	0	47
S-2918-28-5	0	0	0	0	47
S-2918-29-6	0	0	0	0	876
S-2918-30-3	0	0	0	0	694
S-2918-31-4	0	0	0	0	7 573
S-2918-45-1	0	0	0	0	N C
S-2918-46-4	0	0	0	0	1 852
S-2918-50-3	0	0	0	0	1 314
S-2918-51-0	0	0	0	0	
S-2918-52-0	0	0	0	0	
S-2918-53-0	0	0	0	0	
S-2918-54-0	1 840	6 132	88	350	
S-2918-55-3	0	0	0	0	3 493
S-2918-56-3	0	0	0	0	4 987
S-2918-58-3	0	0	0	0	4 987
S-2918-59-3	0	0	0	0	4 987
ATC S-2918-60-1	0	0	0	0	110
ATC S-2918-61-0	0	0	0	0	110
ATC S-2918-62-0	1 971	77	2 212	1,095	876
S-2918-63-0	0	0	0	0	3 753
S-2918-64-0	0	0	0	0	3 753
S-2918-65-0	0	0	0	0	8 403
S-2918-66-0	0	0	0	0	2 709
S-2918-67-0	0	0	0	0	15 542
S-2918-68-0	0	0	0	0	15 542
S-2918-69-0	0	0	0	0	21 681
S-2918-70-0	3 584	132	422	19 499	3 320
S-2918-71-0	0	0	0	0	11 455
S-2918-72-0	0	0	0	0	0
<b>SSPE2</b>	<b>15 229</b>	<b>6 422</b>	<b>5 049</b>	<b>63 568</b>	<b>127 511</b>

N C = not calculated (insufficient information to calculate emissions)

## 5 Major Source Determination

### Rule 2201 Major Source Determination

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

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

<b>Rule 2201 Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	15 229	6 422	5 049	63 568	127 511
SSPE2	15 229	6 422	5 049	63 568	127 511
Major Source Threshold	20 000	140 000	140 000	200 000	20 000
Major Source?	No	No	No	No	Yes

This source is an existing Major Source for VOC emissions and will remain a Major Source for VOC No change in other pollutants are proposed or expected as a result of this project

### Rule 2410 Major Source Determination

The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i) Therefore the following PSD Major Source thresholds are applicable



PSD Major Source Determination (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Estimated Facility PE before Project Increase	7.6	63.8	3.2	31.8	2.5	2.5	16,800 <sup>(4)</sup>
PSD Major Source Thresholds	100	100	100	100	100	100	100,000
PSD Major Source ? (Y/N)	No	No	No	No	No	No	No

As shown above, the facility is not an existing major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

## 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

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

## 7 SB 288 Major Modification

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

<sup>4</sup> CO2e emissions at this facility result from combustion equipment which consists of the flares only. Potential combustion from each of the flares is the following: S 2918.1 115,200 MMBtu/yr (based on operating limit for non-breakdowns); S 2918.2 16,790 MMBtu/yr (based on 46,000 scf/day limit, 1000 Btu/scf, and 365 day/year); S 2918.62 109,500 MMBtu/yr (permit limit); S 2918.70 46,500 MMBtu/yr (based on 46,500 MMscf/yr limit and 1000 Btu/scf). Thus, the total facility combustion is 289,990 MMBtu/yr. Based on an emission factor of 116.67 lb CO2e/MMBtu, the resultant CO2e potential emissions are (289,990 MMBtu/yr) (116.67 lb CO2e/MMBtu) (1 ton/2000 lb) = 16,800 ton CO2e/yr.

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

<b>SB 288 Major Modification Thresholds</b>			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
VOC	0 <sup>(5)</sup>	50 000	No

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

## 8 Federal Major Modification

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

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

### Step 1

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

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

<b>Federal Major Modification Thresholds for Emission Increases</b>			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO <sub>x</sub> *	0	0	No
VOC*	0	0	No
PM <sub>10</sub>	0	30 000	No
PM <sub>2.5</sub>	0	20,000	No
SO <sub>x</sub>	0	80 000	No

\*If there is any emission increases in NO<sub>x</sub> or VOC, this project is a Federal Major Modification and no further analysis is required.

Since none of the Federal Major Modification Thresholds are being surpassed with this project, this project does not constitute a Federal Major Modification and no further analysis is required.

<sup>5</sup> As discussed previously, annual emissions resulting from emergency operation are not quantified.

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

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO<sub>2</sub> (as a primary pollutant)
- SO<sub>2</sub> (as a primary pollutant)
- CO
- PM
- PM<sub>10</sub>
- Greenhouse gases (GHG) CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs, PFCs, and SF<sub>6</sub>

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII C 5 of this document)

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

### **I Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds**

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold, and if total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore, the following PSD Major Source thresholds are applicable:

<b>PSD Major Source Determination Potential to Emit (tons/year)</b>							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Total PE from New and Modified Units	0	0	0	0	0	0	0
PSD Major Source threshold	250	250	250	250	250	250	100 000
New PSD Major Source?	No	No	No	No	No	No	No

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable 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. Since the annual emissions are zero for all pollutants, the QNEC values will also be zero for all pollutants.

## VIII Compliance

### Rule 2201 New and Modified Stationary Source Review Rule

#### A Best Available Control Technology (BACT)

##### 1 BACT Applicability

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

- a Any new emissions unit with a potential to emit exceeding two pounds per day,
- b The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day
- c Modifications to an existing emissions unit with a valid Permit to Operate resulting in an APE 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<sub>x</sub>, PM<sub>10</sub>, CO, and VOC BACT is triggered for NO<sub>x</sub>, SO<sub>x</sub> PM<sub>10</sub> and VOC However BACT is not triggered for CO since the SSPE2 for CO is not 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 not constitute an SB 288 and/or Federal Major Modification for NO<sub>x</sub> emissions Therefore BACT is not triggered for any pollutant

**2 BACT Guideline**

Best Available Control Technology (BACT) Guideline 1 4 2 applies to Waste Gas Flare - Incinerating Produced Gas (See Appendix C )

**3 Top-Down BACT Analysis**

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

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

NO <sub>x</sub>	Steam assisted or Air-assisted or Coanda effect burner when steam unavailable
PM <sub>10</sub>	Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable Pilot Light fired solely on LPG or natural gas
VOC	Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable

**B Offsets**

Since emergency equipment is exempt from the offset requirements of Rule 2201 per Section 4 6 2 and no non-emergency operation of the flare is proposed, offsets are not required for this flare, and no offset calculations are required

**C Public Notification**

**1 Applicability**

Public noticing is required for

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

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

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

**b PE > 100 lb/day**

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

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
<b>Pollutant</b>	<b>PE2 (lb/day)</b>	<b>Public Notice Threshold</b>	<b>Public Notice Triggered?</b>
NO <sub>x</sub>	53 0	100 lb/day	No
SO <sub>x</sub>	0 5	100 lb/day	No
PM <sub>10</sub>	6 2	100 lb/day	No
CO	288 6	100 lb/day	Yes
VOC	49 1	100 lb/day	No

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

**c Offset Threshold**

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

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	15 229	15,229	20,000 lb/year	No
SO <sub>x</sub>	6,422	6,422	54,750 lb/year	No
PM <sub>10</sub>	5,049	5,049	29,200 lb/year	No
CO	63,568	63,568	200 000 lb/year	No
VOC	127,511	127,511	20 000 lb/year	No

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

**d SSIPE > 20,000 lb/year**

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

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	15 229	15 229	0	20 000 lb/year	No
SO <sub>x</sub>	6,422	6,422	0	20 000 lb/year	No
PM <sub>10</sub>	5,049	5,049	0	20,000 lb/year	No
CO	63,568	63,568	0	20,000 lb/year	No
VOC	127 511	127,511	0	20,000 lb/year	No

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

**2 Public Notice Action**

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

**D Daily Emission Limits (DELs)**

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT

**Proposed Rule 2201 (DEL) Conditions**

- The sulfur content of the gas being incinerated by the combustion device shall not exceed 5 ppmv (as H<sub>2</sub>S) [District Rule 2201]
- Emission rates from this unit shall not exceed any of the following limits 0.068 lb-NO<sub>x</sub>/MMBtu, 0.008 lb-PM<sub>10</sub>/MMBtu, 0.37 lb-CO/MMBtu or 0.063 lb-VOC/MMBtu [District Rule 2201]
- Maximum amount of gas combusted shall not exceed 780 MMBtu/day [District Rule 2201]
- Flare shall only be operated for emergency purposes. An emergency is any situation or a condition arising from a sudden and reasonably unforeseeable and unpreventable event beyond the control of the operator. Examples include, but are not limited to, non-preventable equipment failure, natural disaster, act of war or terrorism, or external power curtailment, excluding a power curtailment due to an interruptible power service agreement from a utility. A flaring event due to improperly designed equipment, lack of preventative maintenance, careless or improper operation, operator error or willful misconduct does not qualify as an emergency. An emergency situation requires immediate corrective action to restore safe operation. A planned flaring event shall not be considered as an emergency [District Rules 2201 and 4311]
- The flare shall not be operated for maintenance or testing [District Rule 2201]

**E Compliance Assurance**

**1 Source Testing**

Pursuant to District Policy APR 1705 source testing is not required to demonstrate compliance with Rule 2201

**2 Monitoring**

No monitoring is required to demonstrate compliance with 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 permit to operate

- The permittee shall maintain all records of emergency operations. Records shall include the date and number of hours of each emergency flaring operation, the amount of gas burned [District Rules 2201 and 4311]



- Permittee shall maintain accurate records of flared gas concentration of H<sub>2</sub>S [District Rules 1070 and 2201]
- All records required by this permit shall be retained on-site for a minimum of five years and shall be made available to the APCO, ARB and EPA upon request [District Rules 2201 and 4311]

#### 4 Reporting

No reporting is required to demonstrate compliance with Rule 2201

#### F Ambient Air Quality Analysis (AAQA)

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

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet, the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for the state's PM<sub>10</sub> as well as federal and state PM<sub>2.5</sub> thresholds. As shown by the AAQA summary sheet, the proposed equipment will not cause a violation of an air quality standard for PM<sub>10</sub> and PM<sub>2.5</sub>.

#### Criteria Pollutant Modeling Results\*

Emergency Flare	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA <sup>1</sup>	X	NA <sup>1</sup>	X	X
NO <sub>x</sub>	NA <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	NA <sup>1</sup>	NA <sup>1</sup>	X	NA <sup>1</sup>	Pass <sup>1</sup>
PM <sub>10</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>
PM <sub>2.5</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The project is an intermittent source as defined in APR 1920. In accordance with APR 1920, compliance with short term (i.e., 1 hour, 3 hour, 8 hour, and 24 hour) standards is not required.

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

#### Rule 2520 Federally Mandated Operating Permits

Since this facility's emissions exceed the major source thresholds of District Rule 2201, this facility is a major source. However, this facility has elected to comply with Rule 2530, which exempts it from the requirements of Rule 2520.

### **Rule 2530 Federally Enforceable Potential to Emit**

The purpose of this rule is to restrict the emissions of a stationary source so that the source may elect to be exempt from the requirements of Rule 2520 Pursuant to Rule 2530, since this facility has elected exemption from the requirements of Rule 2520 by ensuring actual emissions from the stationary source in every 12-month periods to not exceed the following ½ the major source thresholds for NO<sub>x</sub>, VOCs, CO, and PM<sub>10</sub>, 50 tons per year SO<sub>2</sub>, 5 tons per year of a single HAP, 12.5 tons per year of any combination of HAPs, 50 percent of any lesser threshold for a single HAP as the EPA may establish by rule, and 50 percent of the major source threshold for any other regulated air pollutant not listed in Rule 2530

### **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 emergency flare 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 new equipment is covered by subparts which require external control devices and refer to this subpart Therefore, the emergency flares are not subject to NSPS

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

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63 Chapter I, Subchapter C, Title 40 CFR, and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63 However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to produced gas flaring operations

### **Rule 4101 Visible Emissions**

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as or darker than, Ringelmann 1 or 20% opacity

The following conditions will be listed on the permit to ensure compliance

- Flare air-assist blower shall be maintained and operated for smokeless combustion i.e. no visible emissions in excess of 5% opacity or 1/4 Ringelmann except for periods not to exceed a total of 5 minutes during any 2 consecutive hours [District Rules 2201 and 4311]

Therefore, compliance with the requirements of this rule is expected

**Rule 4102 Nuisance**

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

**California Health & Safety Code 41700 (Health Risk Assessment)**

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

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

The cancer risk for this project is shown below.

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-2978-72-0	1.21 per million	Yes

**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 required for this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project, T-BACT is triggered for VOC. T-BACT is satisfied with BACT for VOC, which is the use of steam-assisted or air-assisted or Coanada effect burners, when steam is unavailable. Therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Appendix E of this report, the emissions increases for this project was determined to be less than significant.

To ensure that the health risks will not exceed the allowable levels, the following permit conditions will be included:

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

### Rule 4201 Particulate Matter Concentration

Section 3.0 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.

Particulate matter calculations were performed for each piece of equipment by the following equation:

F-Factor for produced gas	8,600 dscf/MMBtu
PM <sub>10</sub> Emission Factor	0.008 lb-PM <sub>10</sub> /MMBtu
Percentage of PM as PM <sub>10</sub> in Exhaust	100%

$$GL = \left( \frac{0.008 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left( \frac{8,600 \text{ ft}^3}{\text{MMBtu}} \right)$$

$$GL = 0.007 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Since the particulate matter concentration is  $\leq 0.1$  grains per dscf, compliance with Rule 4201 is expected.

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

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

### Rule 4301 Fuel Burning Equipment

The purpose of this rule is to limit the emission of air contaminants from fuel burning equipment. Fuel burning equipment is defined in the rule as "any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer."

The purpose of the flare is not to produce heat or power by indirect heat transfer, therefore Rule 4301 does not apply to the flare.

### Rule 4311 Flares

The purpose of this rule is to limit the emissions of volatile organic compounds (VOC), oxides of nitrogen (NOx), and sulfur oxides (SOx) from the operation of flares. This rule is applicable to all operations involving the use of flares.

Section 5 1 states that flares permitted to operate only during an emergency are not subject to the requirements of Section 5 6 and 5 7 The flare in this project qualifies as an emergency flare as defined in Section 3 7 Therefore, Sections 5 6 and 5 7 are not applicable The following condition that defines “emergency” pursuant to Section 3 7 will be listed on the ATC to ensure this exemption

- Flare shall only be operated for emergency purposes An emergency is any situation or a condition arising from a sudden and reasonably unforeseeable and unpreventable event beyond the control of the operator Examples include, but are not limited to, non preventable equipment failure natural disaster act of war or terrorism, or external power curtailment excluding a power curtailment due to an interruptible power service agreement from a utility A flaring event due to improperly designed equipment, lack of preventative maintenance careless or improper operation, operator error or willful misconduct does not qualify as an emergency An emergency situation requires immediate corrective action to restore safe operation A planned flaring event shall not be considered as an emergency [District Rule 2201 and 4311]

Section 5 2 requires that the flame be present at all times when combustible gases are vented through the flare The following condition will be listed on the ATC to ensure compliance

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

Section 5 3 requires that the flare outlet 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, except during purge periods for automatic-ignition equipped flares The application indicates that the flare will be equipped with a continuous flare in compliance with this section The following condition will be listed on the ATC to ensure compliance

- 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 except during purge periods for automatic-ignition equipped flares [District Rule 4311]

Section 5 4 requires 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 listed on the ATC to ensure compliance

- 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 equivalent device capable of continuously detecting the presence of at least one pilot flame or the flare flame shall be installed and operated [District Rule 4311]

Section 5 5 requires flares that use flow-sensitive automatic ignition systems and which do not use a continuous pilot flame to use purge gas for purging The following condition will be listed on the ATCs to ensure compliance

- If the flare uses a flow-sensing automatic ignition system and does not use a continuous flame pilot the flare shall use purge gas for purging [District Rule 4311]

The requirements of Sections 5 6 and Section 5 7 do not apply pursuant to Section 5 1

Section 5 8 prohibits flaring 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. However, this standard does not apply if the APCO determines that the flaring is caused by an emergency as defined by Section 3 7 and is necessary to prevent an accident, hazard, or release of vent gas directly to the atmosphere. Since the proposed flare will be permitted to operate solely during emergency situations as defined in Section 3 7, the FMP requirements will not apply to the proposed flare.

Section 5 9 does not apply as it applies only to refinery flares.

Section 5 10 applies to units subject to section 5 8 and therefore does not apply to this unit.

Section 5 11 requires that any flare with a flaring capacity equal to or greater than 50 MMBtu/hr shall monitor the flare pursuant to Sections 6 6, 6 7, 6 8, 6 9, and 6 10. The flare in this project does not have a flaring capacity greater than 50 MMBtu/hr; therefore, this section does not apply.

Section 6 1 outlines the Recordkeeping requirement pursuant to this rule.

- Sections 6 1 1 and 6 1 2 do not apply as copies of the compliance determinations conducted pursuant to Sections 6 4 1 and 6 4 2 are not required since Sections 5 6 and 5 7 do not apply. Section 6 1 4 does not apply as the facility does not qualify for the exemption in Section 4 3. Sections 6 1 5 and 6 1 6 do not apply as a FMP is not required as the flare shall only be permitted to operate during emergencies. Section 6 1 7 does not apply as the flare's flaring capacity is less than 50 MMBtu/hr.
- Only the recordkeeping requirements pursuant to Section 6 1 3 apply. For flares used during an emergency, the record of the duration of flare operation, amount of gas burned, and the nature of the emergency situation shall be maintained. The following conditions will be listed on the ATCs to ensure compliance:
  - The permittee shall maintain all records of emergency operations. Records shall include the date and number of hours of each operation, the amount of gas burned, and records of operational characteristics monitoring [District Rules 2201 and 4311].
  - All records required by this permit shall be retained on-site for a minimum of five years and shall be made available to the APCO, ARB, and EPA upon request [District Rules 2201 and 4311].

Section 6 2 does not apply since the flare is not subject to a Flare Minimization Plan pursuant to Section 5 8 as the flare will be permitted to operate only during emergencies.

Section 6 4 does not apply to this project since the proposed flare is not subject to sections 5 6 or 5 7 per section 5 1

Section 6 5 lists requirements of a Flare Minimization Plan Flare Minimization Plans do not apply to emergency flaring events pursuant to Section 5 8 Since the proposed flare will only be permitted to operate during emergencies, this section does not apply

The monitoring requirements of Sections 6 6 through 6 10 do not apply as those apply to refinery flares or flare with a flaring capacity equal or greater than 50 MMBtu/hr

Therefore, compliance with this rule is expected

### Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO<sub>2</sub>) shall not exceed 0 2% by volume Using the ideal gas equation, the sulfur compound emissions are calculated as follows

$$\begin{aligned} \text{Volume SO}_2 &= (n \times R \times T) - P \\ n &= \text{moles SO}_2 \\ T \text{ (standard temperature)} &= 60 \text{ }^\circ\text{F or } 520 \text{ }^\circ\text{R} \\ R \text{ (universal gas constant)} &= \frac{10.73 \text{ psi ft}^3}{\text{lb mol } ^\circ\text{R}} \end{aligned}$$

F-Factor for Produced gas 8 600 dscf/MMBtu

$$\frac{0.0007 \text{ lb-SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,600 \text{ dscf}} \times \frac{1 \text{ lb mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi ft}^3}{\text{lb mol } ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \text{ parts}}{\text{million}} = 0.5 \frac{\text{parts}}{\text{million}}$$

Since the SO<sub>x</sub> concentration is ≤ 2,000 ppmv, the flare is expected to comply with Rule 4801

### California Health & Safety Code 42301 6 (School Notice)

The District has verified that this site is not located within 1 000 feet of a school Therefore pursuant to California Health and Safety Code 42301 6, a school notice is not required

### California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents The District adopted its *Environmental Review Guidelines* (ERG) in 2001 The basic purposes of CEQA are to

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

**Greenhouse Gas (GHG) Significance Determination**

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

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

**District CEQA Findings**

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

**IX Recommendation**

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC S-2918-72-0 subject to the permit conditions on the attached draft ATC in Appendix A.

**X Billing Information**

<b>Annual Permit Fees</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Annual Fee</b>
S-2918-72-0	3020-02-H	32.5 MMBtu/hr	\$1,030.00



## **Appendices**

- A Draft Authority to Construct
- B Gas Analysis
- C BACT Guideline
- D BACT Analysis
- E HRA/AAQA Summary

**APPENDIX A**  
**Draft Authority to Construct**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO S-2918-72 0

LEGAL OWNER OR OPERATOR CRIMSON RESOURCE MANAGEMENT  
MAILING ADDRESS ATTN ENVIR H & S ENGINEER  
5001 CALIFORNIA AVE SUITE #206  
BAKERSFIELD CA 93309

LOCATION LIGHT OIL CENTRAL STATIONARY SOURCE  
KERN COUNTY CA

**EQUIPMENT DESCRIPTION**

32.5 MMBTU/HR AIR-ASSIST NATIONAL AIR OIL BURNER COMPANY MODEL NAFV EMERGENCY FLARE WITH AUTOMATIC SPARK-IGNITED PILOT COMBUSTION AIR BLOWER AND GAS FLOW METER

**CONDITIONS**

- 1 The permittee shall not emit more than one half of the major source threshold based on a rolling 12-month summary of actual emissions [District Rule 2530]
- 2 The permittee shall maintain a record of the rolling 12 month summary of actual emissions from permitted operations. This record shall be kept on site and made available to the District upon request [District Rule 2530]
- 3 {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration [District Rule 4201]
- 4 {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity [District Rule 4101]
- 5 The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang or any other obstruction [District Rule 4102]

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.

Seyed Sadredin Executive Director APCO

DRAFT

DAVID WARNER Director of Permit Services

6-2918-72-0 Feb 5 2014 8:57AM - RAMIREZH Joint: pct NOT Required

- 6 Flare shall only be operated for emergency purposes. An emergency is any situation or a condition arising from a sudden and reasonably unforeseeable and unpreventable event beyond the control of the operator. Examples include, but are not limited to, non preventable equipment failure, natural disaster, act of war or terrorism, or external power curtailment, excluding a power curtailment due to an interruptible power service agreement from a utility. A flaring event due to improperly designed equipment, lack of preventative maintenance, careless or improper operation, operator error or willful misconduct does not qualify as an emergency. An emergency situation requires immediate corrective action to restore safe operation. A planned flaring event shall not be considered as an emergency. [District Rule 2201 and 4311]
- 7 The flare shall not be operated for maintenance or testing. [District Rule 2201]
- 8 The unit 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 unit. [District Rule 2201]
- 9 Flare air-assist blower shall be maintained and operated for smokeless combustion, i.e. no visible emissions in excess of 5% opacity or 1/4 Ringelmann except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [District Rules 2201 and 4311]
- 10 A flame shall be present at all times when combustible gases are vented through the flare. [District Rule 4311]
- 11 The flare shall be operated according to the manufacturer's specifications, a copy of which shall be maintained on site. [District Rule 2201]
- 12 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, except during purge periods for automatic-ignition equipped flares. [District Rule 4311]
- 13 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 equivalent device capable of continuously detecting the presence of at least one pilot flame or the flare flame, shall be installed and operated. [District Rule 4311]
- 14 If the flare uses a flow sensing automatic ignition system and does not use a continuous flame pilot, the flare shall use purge gas for purging. [District Rule 4311]
- 15 The sulfur content of the gas being incinerated by the combustion device shall not exceed 5 ppmv (as H<sub>2</sub>S). [District Rules 2201 and 4801]
- 16 Maximum amount of gas combusted shall not exceed 780 MMBtu/day. [District Rule 2201]
- 17 Emission rates from this unit shall not exceed any of the following limits: 0.068 lb-NO<sub>x</sub>/MMBtu, 0.008 lb PM<sub>10</sub>/MMBtu, 0.37 lb CO/MMBtu, or 0.063 lb-VOC/MMBtu. [District Rule 2201]
- 18 To show compliance with sulfur emission limits (ppmv as H<sub>2</sub>S), the gas being flared shall be tested weekly for sulfur content. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for the flared gas, then the compliance testing frequency shall be semi-annually. If the semi-annual sulfur content test fails to show compliance, weekly testing shall resume. [District Rule 2201]
- 19 The sulfur content of the gas being flared shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rules 1070 and 2201]
- 20 Permittee shall maintain accurate records of flared gas concentration of H<sub>2</sub>S. [District Rules 1070 and 2201]
- 21 The permittee shall maintain all records of emergency operations. Records shall include the date and number of hours of each emergency flaring operation and the amount of gas burned. [District Rules 2201 and 4311]
- 22 All records required by this permit shall be retained on-site for a minimum of five years and shall be made available to the APCO, ARB, and EPA upon request. [District Rules 2201 and 4311]
- 23 Authority to Construct (ATC) S-2918-62-0 shall be implemented prior to or concurrently with this ATC. [District Rule 2201]

DRAFT

**APPENDIX B**  
**Gas Analysis**



**ZALCO LABORATORIES INC.**

4309 Armour Avenue Bakersfield CA 93308 (661) 395 0539 FAX (661) 395 3069 www.zalcolabs.com  
 2186 Eastman Avenue, Suite 103 Ventura, CA 93003 (805) 477 0114 Fax (805) 477 0125

**Crimson Resource Management**  
 5001 California Ave Suite 206  
 Bakersfield CA 93309

**Laboratory No** 1203424-01  
**Date Received** 03/28/12  
**Date Analyzed** 03/29/12

**Attention** Paul Combs

**Sample Description** PANAMA 14 FLARE  
 Sampled 03/28/2012 @ 07 20 AM by Paul Combs



Constituent	Result	Units
Hydrogen Sulfide	20	ppm
Total Sulfur	0.12	grs S/100 SCF



Constituent	Mole %	Weight %	GPM	GPM	
				Fractions	CHONSYS
			(G tons per 1000 cubic feet)		Carbon C 76.39
Carbon Dioxide	1.776	3.36			Hydrogen H 21.17
Carbon Monoxide	0.000	0.00			Oxygen O 2.44
Hydrogen Sulfide	0.000	0.00			Nitrogen N 0.00
Methane	77.246	53.23		(C3 C3) = 2.346	Sulfur S 0.00
Ethane	4.761	6.15		(C3 C4) = 4.031	
Propane	8.529	16.15	2.346		
IsoButane	1.553	3.88	0.508		
n Butane	3.738	9.33	1.177		
IsoPentane	0.981	3.04	0.358		
n Pentane	0.618	1.97	0.223		
Hexanes	0.797	2.95	0.343	(C3 C5) = 4.612	
				(C3 C6+) = 4.955	
<b>Totals</b>	<b>100.00</b>	<b>100.00</b>	<b>4.955</b>		<b>15.943</b> <b>100.00</b>

Flammable Gases		98.224
Gas Properties calculated @ STP degrees F		60
Measurement Base Pressure @ STP psia		14.696
	H/C Ratio	0.28

Gas State	Dry		Wet
	Btu / Cu Ft	Btu / lb	Btu / Cu Ft
Gross Ideal Gas	1353.45	22059.50	1329.90
Net Ideal Gas	1230.43	20054.45	1209.02
Gross Real Gas	1359.55		1335.89
Net Real Gas	1235.98		1214.47

Relative Gas Density [Air=1] Ideal	0.8039	F Factor DSCF/MMBtu @ 60F	8609.6	9470.3
Specific Gravity [Air=1] Real gas	0.8071	F Factor DSCF/MMBtu @ 68F	8740.7	9614.6
Real Gas Density Lb/Cu Ft	0.0616	F Factor DSCF/MMBtu @ 70F	8773.9	9651.1
Specific Volume Cu Ft/Lb	16.2254	F Factor DSCF CO2/MMBtu @ 60F	1094.9	1204.3
Relative Liquid Density @ 60F/60F	0.3761	F Factor DSCF CO2/MMBtu @ 68F	1111.5	1222.7
Compressibility z	0.9955			
Fuel kg per kg mole Molecular wt avg	23.283			



**APPENDIX C**  
**BACT Guideline**

**San Joaquin Valley  
Unified Air Pollution Control District**

**Best Available Control Technology (BACT) Guideline 1 4 2\***

Last Update 12/31/1998

**Waste Gas Flare - Incinerating Produced Gas**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
CO	Steam assisted or Air-assisted or Coanda effect burner when steam unavailable		
NOx	Steam assisted or Air assisted or Coanda effect burner when steam unavailable		
PM10	Steam assisted or Air assisted or Coanda effect burner when steam unavailable  Pilot Light fired solely on LPG or natural gas		
SOx	Steam assisted or Air-assisted or Coanda effect burner when steam unavailable  Pilot Light fired solely on LPG or natural gas	Precombustion SOx scrubbing system (non emergency flares only )	
VOC	Steam assisted or Air assisted or Coanda effect burner when steam unavailable		

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

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



**APPENDIX D**  
**BACT Analysis**

## **Top Down BACT Analysis for NOx Emissions**

### **Step 1 - Identify All Possible Control Technologies**

The SJVUAPCD BACT Clearinghouse 1 4 2 identifies achieved-in-practice and technologically feasible BACT for *Waste Gas Flare – Incinerating Produced Gas* as follows

#### **Achieved in Practice**

- 1 Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable

### **Step 2 - Eliminate Technologically Infeasible Options**

There are no options to eliminate in this step

### **Step 3 - Rank Remaining Control Technologies by Control Effectiveness**

- 1 Steam assisted or Air-assisted or Coanda effect burner when steam unavailable

### **Step 4 - Cost Effectiveness Analysis**

There is only one achieved in practice option, and it is being proposed by the applicant  
Therefore a cost-effectiveness analysis is not necessary

### **Step 5 - Select BACT**

- 1 Steam assisted or Air-assisted or Coanda effect burner when steam unavailable

## **Top Down BACT Analysis for PM10 Emissions**

### **Step 1 - Identify All Possible Control Technologies**

The SJVUAPCD BACT Clearinghouse 1 4 2 identifies achieved-in-practice and technologically feasible BACT for *Waste Gas Flare – Incinerating Produced Gas* as follows

#### **Achieved in Practice**

- 1 Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable and a pilot light fired solely on LPG or natural gas

### **Step 2 - Eliminate Technologically Infeasible Options**

There are no options to eliminate in this step

### **Step 3 - Rank Remaining Control Technologies by Control Effectiveness**

- 1 Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable and a pilot light fired solely on LPG or natural gas

### **Step 4 - Cost Effectiveness Analysis**

There is only one achieved in practice option, and it is being proposed by the applicant Therefore, a cost-effectiveness analysis is not necessary

### **Step 5 - Select BACT**

Since flared gas for this equipment has a limit of 1 gr-S/100 dscf this is considered equivalent to natural gas required to fuel the pilot BACT is then

- 1 Steam assisted or Air-assisted or Coanda effect burner when steam unavailable and a pilot light fired solely on LPG or natural gas

## **Top Down BACT Analysis for VOC Emissions**

### **Step 1 - Identify All Possible Control Technologies**

The SJVUAPCD BACT Clearinghouse 1 4 2 identifies achieved-in-practice and technologically feasible BACT for *Waste Gas Flare – Incinerating Produced Gas* as follows

#### **Achieved in Practice**

- 1 Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable

### **Step 2 - Eliminate Technologically Infeasible Options**

There are no options to eliminate in this step

### **Step 3 - Rank Remaining Control Technologies by Control Effectiveness**

- 1 Steam assisted or Air-assisted or Coanda effect burner when steam unavailable

### **Step 4 - Cost Effectiveness Analysis**

There is only one achieved in practice option, and it is being proposed by the applicant Therefore a cost-effectiveness analysis is not necessary

### **Step 5 - Select BACT**

- 1 Steam assisted or Air-assisted or Coanda effect burner, when steam unavailable

**APPENDIX E**  
**HRA/AAQA Summary**

# San Joaquin Valley Air Pollution Control District Risk Management Review

To Homero Ramirez – Permit Services  
 From Kyle Melching – Technical Services  
 Date January 7 2014  
 Facility Name Crimson Resource Management  
 Location Pacheco Rd & Akers Rd Bakersfield  
 Application #(s) S-2918-72-0  
 Project # S-1133978

## A RMR SUMMARY

RMR Summary			
Categories	Waste Gas Flare (Unit 72-0)	Project Totals	Facility Totals
Priority Score	6.75	6.75	>1.0
Acute Hazard Index	0.8	0.8	0.8
Chronic Hazard Index	0.01	0.01	0.01
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	1.21E-06	1.21E-06	7.66E-06
T-BACT Required?	Yes-VOC's		
Special Permit Conditions?	Yes		

### Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels the following permit conditions must be included for

#### Unit # 72-0

- 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 [District Rule 4102]
- 2 The emergency flare is limited to 200 hours for testing and maintenance.

## B RMR REPORT

### I Project Description

Technical Services received a request on November 4 2013 to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for installation of a new 32.5 MMBtu/hr waste gas emergency flare. This will be a back up flare to flare S-2918-62 and will be limited to 200 hours of testing and maintenance.

## II Analysis

Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion and on a refinery gas composition analysis from the 2005 report *FINAL REPORT Test of TDA's Direct Oxidation Process for Sulfur Recovery*. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1 March 2 2001) risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the project was greater than 1.0 (see RMR Summary Table) therefore a refined Health Risk Assessment was required and performed for the project. AERMOD was used with source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review

Analysis Parameters Unit 72-0			
Source Type	Point	Location Type	Urban
Stack Height (m)	4.27	Closest Receptor (m)	98
Stack Diameter (m)	0.5	Type of Receptor	Business
Stack Exit Velocity (m/s)	0.11	Max Hours per Year	200
Stack Exit Temp (°K)	1200	Fuel Type	NG/Waste gas

Technical Services also performed modeling for criteria pollutants NO<sub>x</sub>, CO, SO<sub>x</sub> and PM<sub>10</sub>, as well as the RMR. For Unit 72-0, the emission rates used for criteria pollutant modeling were 442 lb/yr NO<sub>x</sub>, 2,405 lb/yr CO, 19 lb/yr SO<sub>x</sub> and 169 lb/yr PM<sub>10</sub>.

The results from the Criteria Pollutant Modeling are as follows

### Criteria Pollutant Modeling Results\*

Emergency Flare	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA <sup>1</sup>	X	NA <sup>1</sup>	X	X
NO <sub>x</sub>	NA <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	NA <sup>1</sup>	NA <sup>1</sup>	X	NA <sup>1</sup>	Pass
PM <sub>10</sub>	X	X	X	NA <sup>1</sup>	Pass
PM <sub>2.5</sub>	X	X	X	NA <sup>1</sup>	Pass

\*Results were taken from the attached PSD spreadsheet

<sup>1</sup>The project is an intermittent source as defined in APR 1920. In accordance with APR 1920, compliance with short term (i.e., 1-hour, 3-hour, 8-hour, and 24-hour) standards is not required.

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

### **III Conclusion**

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

The acute and chronic indices are below 1.0 and the maximum individual cancer risk associated with the project is  $1.21 \times 10^{-6}$  which is greater than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).

To ensure that human health risks will not exceed District allowable levels, the permit conditions listed on Page 1 of this report must be included for this permit 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.

### **IV Attachments**

- A RMR request from the project engineer
- B Additional information from the applicant/project engineer
- C Prioritization score w/ toxic emissions summary
- D HARP Risk Report
- E Facility Summary
- F AAQA Summary
- G AERMOD Non-Regulatory Option Checklist