



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

AUG 30 2012

Bill Oliver  
San Joaquin Facilities Management  
5400 Rosedale Highway  
Bakersfield, CA 93308

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1122041**

Dear Mr. Oliver:

Enclosed for your review and comment is the District's analysis of San Joaquin Facilities Management's (SJFM) application for an Authority to Construct for a new 2.29 MMBtu/hr Coanda effect flare, at SJFM'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. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Dan Klevann of Permit Services at (661) 392-5607.

Sincerely,

David Warner  
Director of Permit Services

DW:DG/st

Enclosures

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

**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

AUG 30 2012

Mike Tollstrup, Chief  
Project Assessment Branch  
Stationary Source Division  
California Air Resources Board  
PO Box 2815  
Sacramento, CA 95812-2815

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1122041**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of San Joaquin Facilities Management's (SJFM) application for an Authority to Construct for a new 2.29 MMBtu/hr Coanda effect flare, at SJFM'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. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Dan Klevann Klevann of Permit Services at (661) 392-56077.

Sincerely,

David Warner  
Director of Permit Services

DW:DG/st

Enclosure

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

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**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

AUG 30 2012

Gerardo C. Rios (AIR 3)  
Chief, Permits Office  
Air Division  
U.S. E.P.A. - Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1122041**

Dear Mr. Rios:

Enclosed for your review and comment is the District's analysis of San Joaquin Facilities Management's (SJFM) application for an Authority to Construct for a new 2.29 MMBtu/hr Coanda effect flare, at SJFM'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. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Dan Klevann of Permit Services at (661) 392-56077.

Sincerely,

David Warner  
Director of Permit Services

DW:DG/st

Enclosure

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

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Bakersfield Californian  
Bakersfield Californian

**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to San Joaquin Facilities Management for a new 2.29 MMBtu/hr Coanda effect flare, at SJFM's Kern County Light Oil Central stationary source.

The analysis of the regulatory basis for this proposed action, Project #S-1122041, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 Flyover Court, Bakersfield, CA 93308.**

# San Joaquin Valley Air Pollution Control District Authority to Construct Application Review

## New Flare

Facility Name: San Joaquin Facilities Management      Date: 8/20/2012  
Mailing Address: 5400 Rosedale Hwy      Engineer: Dolores Gough  
                         Bakersfield, CA 93308      Lead Engineer: Dan Klevann  
Contact Person: Bill Oliver or Scott Faulkenburg (Envirotech)      ~~DK~~ 8-22-12  
Telephone: 661-631-8713 or 661-377-0073  
Application #(s): S-2980-77-0  
Project #: 1122041  
Deemed Complete: 6/21/2012

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### I. Proposal

San Joaquin Facilities Management (SJFM) is requesting an Authority to Construct (ATC) permit for the installation of a 2.29 MMBtu/hr produced gas Coanda-effect flare. The flare will be used to incinerate excess produced gas when the sales gas line is not available. To mitigate the flare's emissions increase, SJFM will surrender tank PTO S-2980-26.

### 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 2530      Federally Enforceable Potential to Emit (6/10/10)  
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 4301      Fuel Burning Equipment (12/17/92)  
Rule 4311      Flares (6/18/09)  
Rule 4409      Components at Light Crude Oil Production Facilities, Natural Gas  
                         Production Facilities, and Natural Gas Processing Facilities (4/20/05)  
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 flare is located at the SJFM's Arco Lease facility within the southwest quarter of Section 10, Township 29S, Range 26E within their 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**

SJFM operates a crude oil production facility for the processing and storage of crude oil produced at the Rosedale Field, Arco Lease. Produced gas and oil are processed through a separator, where gas is removed and sent to a sales gas line. Produced water is sent to a wastewater tank and injected in water injection wells. The oil is transported to two crude oil storage tanks before shipping offsite via trucks. When the sales gas line is not available, the flare will be used.

#### **V. Equipment Listing**

**Pre-Project Equipment Description:** (see PTO in **Appendix A**):

S-2980-26-1: 125 BBL SUMP TANK

**Proposed Equipment:**

S-2980-77-0: 2.29 MMBTU/HR COANDA-EFFECT FLARE WITH AUTO-IGNITION (ARCO LEASE)

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

The subject flare has the potential to emit NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC emissions due to the incineration of produced gas generated by oil production activities.

The flare will be equipped with a Coanda-effect tip which draws in large amounts of air in order to increase turbulent mixing of fuel and air which promotes complete hydrocarbon combustion. This reduces carbon monoxide (CO) emissions and smoke/ particulate matter (PM<sub>10</sub>) which are caused by high temperatures and incomplete combustion.

To ensure that combustible gases are incinerated, the flare's outlet is equipped with an automatic ignition system.

#### **VII. General Calculations**

##### **A. Assumptions**

Tank S-2980-26-1:

- Only VOCs are emitted from the tank
- Operational time: 24 hours per day
- Vapor Molecular Weight: 50
- Throughput: 50 barrels per day (PTO)
- RVP: 5 psia
- Equipped with fixed-roof with PV vent (per applicant)

Flare S-2980-77-0:

- Flared gas higher heating value: 1100 Btu/scf (Supplemental application)
- Flared gas S content: 5 gr S/100 scf (Supplemental application)
- Emissions from combustion of pilot gas are neglected
- Flared gas is limited to 9.125 MMscf/yr or 10,038 MMBtu/yr (HRA limit)

**B. Emission Factors**

<b>Flare Emission Factors</b>		
<b>Pollutant</b>	<b>lb/MMBtu</b>	<b>Source of Emission Factor</b>
NOx	0.068	EPA AP-42/FYI-83
CO	0.370	EPA AP-42/FYI-83
VOC	0.063	EPA AP-42/FYI-83
PM <sub>10</sub>	0.008	EPA AP-42/FYI-83
SOx (as SO <sub>2</sub> )*	0.014	Mass balance

\*SOx = (5.0 gr-S/100 scf)(10<sup>6</sup>scf fuel/MMSCF)(lb/7000 gr)(MMSCF/1,100 MMBtu)(64 lb-SO<sub>2</sub>/32 lb-S) = 0.013 round to **0.014 lb/MMBtu** (per applicant)

**C. Calculations**

**1. Pre-Project Potential to Emit (PE1)**

Tank S-2980-26-1: (See calculations in **Appendix B**)

Daily PE1 = 3.5 lb-VOC/day  
Annual PE1 = 1,265 lb-VOC/yr

Flare S-2980-77-0: Since the flare is a new equipment, PE1 = 0 for all pollutants.

**2. Post Project Potential to Emit (PE2)**

Tank S-2980-26-1: PTO will be surrendered, PE2 = 0

Flare S-2980-77-0:

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

Flare S-2980-77-0				
	Emission Factor (lb/MMBtu)	MMBtu/time	lb/day	lb/year
NOx	0.068	2.29 MMBtu/hr or 10,038 MMBtu/yr	3.7	683
SOx	0.014		0.8	141
PM10	0.008		0.4	80
CO	0.370		20.3	3,714
VOC	0.063		3.5	632

**Greenhouse Gas Emissions (GHG) Increase:**

The GHG Emission Factor is 0.05368 metric tons CO<sub>2</sub>e /MMBtu (from ARB for natural gas with HHV of 1,100 Btu/scf).

$$\text{CO}_2\text{e mton/yr} = 0.05368 \text{ mton CO}_2\text{e/MMBtu} \times 10,038 \text{ MMBtu/yr} \\ = 539 \text{ mton CO}_2\text{e/yr}$$

As shown in the above calculation, the GHG as CO<sub>2</sub>e is above the District threshold of 230 metric tons of CO<sub>2</sub>e/yr. To address the potential increase in GHG emissions, SJFM is proposing to comply with the best performance standard (BPS) developed by the District for VOC control devices. The produced gas will be transferred to sales gas pipeline and will be incinerated in the flare if sales gas pipeline is not available (**Appendix I**– BPS for VOC Control/Gas Disposal)

**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 taken from projects S-1114893 and 1121897, the last ATC projects to be finalized.

SSPE1 (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1 (include ERCs)	15,917	1,754	1,614	69,631	>>20,000
SSPE1 (exclude ERCs)	13,755	1,754	1,461	65,837	>>20,000

**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>SSPE2 (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-2980-26-1 (-)	0	0	0	0	1,265
S-2980-77-0 (+)	683	141	80	3,714	632
SSPE2 (include ERCs)	16,600	1,895	1,694	73,345	>>20,000
SSPE2 (exclude ERCs)	14,438	1,895	1,541	69,551	>> 20,000

### 5. 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. However, for the purposes of determining major source status, the SSPE2 shall not include 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>Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1(exclude ERCs)	13,775	1,754	1,461	65,837	>20,000
SSPE2 (exclude ERCs)	14,438	1,895	1,541	69,551	>20,000
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	Yes

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

### 6. Baseline Emissions (BE)

The BE calculation (in lbs/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.

As shown in Section VII.C.5 above, the facility is not a Major Source for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub> and CO pollutant; therefore BE=PE1 for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub> and CO.

As shown in Section VII.C.5 above, the facility is a major source for VOC emissions.

**BE for VOC:**

Tank S-2980-26-1: Clean Emissions Unit, Located at a Major Source

Pursuant to Rule 2201, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

Tanks S-2980-26 is equipped with PV-vent set to within 10% of maximum allowable pressure, which meets the requirements for achieved-in-practice BACT for VOC emissions (see BACT Guideline 7.3.1 in **Appendix D**). Therefore, BE=PE1.

Flare S-2980-77-0: Since the flare is a new emissions unit, its BE = 0 for VOC.

**7. SB 288 Major Modification**

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

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

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
VOC	632	50,000	No

**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.

Federal Major Modification Thresholds for Emission Increases			
New Unit	Total Emissions Increases (lb-VOC/yr)	Thresholds (lb-VOC/yr)	Federal Major Modification?
S-2980-77-0	632	0	Yes

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. There is an increase in VOC; therefore, this project is a federal major modification.

### 9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix C.

## VIII. Compliance

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

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

##### 1. BACT Applicability

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

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

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

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

As seen in Section VII.C.2 above, the applicant is proposing to install a new flare with a PE greater than 2 lb/day for NO<sub>x</sub>, CO and VOC. BACT is triggered for NO<sub>x</sub>, and VOC only since the PEs are greater than 2 lbs/day. BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lbs/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**

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

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

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's Potential to Emit prior to modification or relocation, (lb/day)

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

There is no unit that is being modified on this project.

**d. SB 288/Federal Major Modification**

As discussed in Section VII.C.7 above, this project does constitute a Federal Major Modification for VOC emissions. Therefore, BACT is triggered for VOC for the flare.

**2. BACT Guideline**

BACT Guideline 1.4.2 applies to "Waste Gas Flare –Incinerating Produced Gas" (See Appendix D)

**3. Top-Down BACT Analysis**

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

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

NO<sub>x</sub>: Coanda-effect burner  
VOC: Coanda-effect burner

## B. Offsets

### 1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to 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 <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	16,600	1,895	1,694	73,345	>>20,000
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	Yes

### 2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for VOC and the SSPE2 is greater than the offset thresholds. Therefore, offset calculations will be required for this project.

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

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

Where,

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

BE = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

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,

$$BE = HAE$$

As shown in Section VII.C.6 above, the BE for VOC from the units are equal to the PE1.

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

$$PE2 \text{ (VOC)} = PE2 \text{ (tank)} + PE2 \text{ (flare)} = 0 + 632 = 632 \text{ lb/yr}$$

$$BE \text{ (VOC)} = PE1 \text{ (tank)} + PE1 \text{ (flare)} = 1,265 + 0 = 1,265 \text{ lb/yr}$$

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([632 - 1,265] + 0) \times DOR \\ &= -633 \text{ lb VOC/year (or zero)} \end{aligned}$$

As demonstrated in the calculation above, the amount of offsets is zero. Therefore, offsets will not be required for this project.

## C. Public Notification

### 1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE 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. However, as demonstrated in VII.C.7, this project is a Federal Major Modification. Therefore, public noticing for Federal Major Modification purposes is required.

#### b. PE > 100 lb/day

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

**c. Offset Threshold**

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

<b>Offset Thresholds</b>				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	15,917	16,600	20,000 lb/year	No
SO <sub>x</sub>	1,754	1,895	54,750 lb/year	No
PM <sub>10</sub>	1,614	1,694	29,200 lb/year	No
CO	69,631	73,345	200,000 lb/year	No
VOC	>20,000	>20,000	20,000 lb/year	No

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

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

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

<b>SSIPE Public Notice Thresholds</b>					
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	15,917	16,600	683	20,000 lb/year	No
SO <sub>x</sub>	1,754	1,895	141	20,000 lb/year	No
PM <sub>10</sub>	1,614	1,694	80	20,000 lb/year	No
CO	69,631	73,345	3,714	20,000 lb/year	No
VOC	>20,000	>20,000	0	20,000 lb/year	No

As demonstrated above, the SSIPE for all pollutants is not greater than 20,000 lb/year; therefore, public noticing for SSIPE purposes is required.

**2. Public Notice Action**

As discussed above, public noticing is required for this project for federal major modification purposes.

**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. The following conditions will be on the new ATC to ensure compliance with this rule:

- Emission rates from flare shall not exceed any of the following: PM10: 0.008 lb/MMBtu, SOx (as SO2): 0.014 lb/MMBtu, NOx (as NO2): 0.068 lb/MMBtu, VOC: 0.063 lb/MMBtu, CO: 0.37 lb/MMBtu. [District Rule 2201]
- Sulfur content of produced gas combusted shall not exceed 5.0 gr/100 dscf. [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**

The following monitoring is required to demonstrate compliance with Rule 2201.

- The flared gas sulfur concentration shall be determined annually using one of the following test methods: ASTM D1072, ASTM D3246, ASTM D6228 (GC-FPD), double GC for H2S and mercaptans, or equivalent test method with prior District approval. [District Rule 2201] N
- Higher heating value of flared gas shall be determined using ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 1070 and 2201] N

### **3. Recordkeeping**

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

- Permittee shall keep accurate daily and annual records of flare gas volumes, sulfur content, and higher heating value of flared gas and such records shall be retained for a period of 5 years and be made readily available for District inspection upon request. [District Rule 2201] N

### **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>.

Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>; as well as a RMR. The following parameters were used:

Analysis Parameters Unit 77-0			
Stack Height (m)	6.1	Closest Receptor (m)	940
Stack Diameter. (m)	0.265	Stack Direction	Vertical
Stack Exit Velocity (m/s)	0.297		
Stack Exit Temp. (°K)	1273		

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results\*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Pass <sup>2</sup>	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>3</sup>	Pass <sup>3</sup>
PM <sub>2.5</sub>	X	X	X	Pass <sup>3</sup>	Pass <sup>3</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The project was compared to the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. The criteria pollutant 1-hour value passed using TIER I NO<sub>2</sub> NAAQS modeling

<sup>2</sup>The project was compared to the 1-hour SO<sub>2</sub> National Ambient Air Quality Standard that became effective on August 23, 2010 using the District's approved procedures.

<sup>3</sup>The maximum predicted concentration for emissions of these criteria pollutants from the proposed unit are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

#### G. Compliance Certification

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

#### H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a new flare.

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

#### **Rule 2520 Federally Mandated Operating Permits**

Since this facility's VOC emissions exceed the major source thresholds of District Rule 2201, this facility is a major source. SJFM, however has elected to comply with Rule 2530. Therefore, the facility is exempt 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)**

**40 CFR 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*

This subpart applies to oil tanks with a capacity greater than 10,000 barrels. Since the tank in this project does not exceed 10,000 barrels, this subpart is not applicable to this project.

There are no Subparts of 40 CFR 60 applicable to Flares.

#### **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.

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

#### **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 or equal to 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-2980-77-0	2.38 per million	Yes for VOC

### 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 (see **Appendix E**), which is the use of flare with Coanda effect burner. 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.

The following conditions will be on the permit to ensure that human health risks will not be exceeded:

- 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]

- Total quantity of produced/natural gas combusted shall not exceed 9.125 MMscf/yr. [ District Rule 4102]

**Rule 4201 Particulate Matter Concentration**

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

The concentration of particulate matter in the flare’s exhaust can be calculated given the following data:

F-Factor for Flared Gas: 8,604 dscf/MMBtu at 60 °F  
 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%  
 Exhaust Oxygen (O<sub>2</sub>) Concentration: 3%  
 Excess Air Correction to F Factor = 20.9 ÷ (20.9 - 3) = 1.17

$$\frac{\left( \frac{0.008 \text{ lb} \cdot \text{PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb}} \right)}{\frac{8,604 \text{ ft}^3}{\text{MMBtu}} \times 1.17} = 0.006 \frac{\text{grain} \cdot \text{PM}}{\text{ft}^3}$$

Since 0.006 grain/dscf is less than 0.1 grain/dscf, compliance with District Rule 4201 is expected and the following condition will be listed on the flare’s 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**

This rule specifies maximum emission rates in lb/hr for SO<sub>2</sub>, NO<sub>2</sub>, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas and LPG combustion are less than 1 μm in diameter.

The following table compares the Flare’s emissions with Rule 4301 limits.

Rule 4301 Limits			
Pollutant	Flare Emissions (lb/hr)	Rule 4301 Limits (lb/hr)	Compliant?
NO <sub>2</sub>	0.2	140	Yes
SO <sub>2</sub>	0.03	200	Yes
Total PM	0.02	200	Yes

Since none of the Rule 4301 limits are exceeded, compliance with Rule 4301 is expected. Since the proposed emission limits already placed on the flare permit are much more stringent, no additional conditions will be listed.

### **Rule 4311 - Flares**

Rule 4311 limits the emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NOx), and sulfur from the operation of flares.

Section 5.1 states 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 is not an emergency flare; therefore, Sections 5.6 and 5.7 are applicable.

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 ATCs 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 following condition will be listed on the ATCs 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 flare is equipped with an automatic (flow-sensing) ignition system; therefore, this section does not apply.

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]

Section 5.8 states that Effective on and after July 1, 2011, flaring is prohibited 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.

Subsection 6.5.1 states that by July 1, 2010, 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.

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.

The proposed flare has a flaring capacity of less than 5.0 MMBtu/hr; therefore is not subject to this section of the rule.

Section 5.9 cites Petroleum Refinery SO<sub>2</sub> Performance Targets. The flare does not serve a petroleum refinery.

Section 5.10 states that effective on and after July 1, 2011, the operator of a flare subject to flare minimization requirements pursuant to Section 5.8 shall monitor the vent gas flow to the flare with a flow measuring device or other parameters as specified in the Permit to Operate. Section 5.10 is not effective till after July 1, 2011. The flare is not subject to the requirements of Section 5.8.

Section 5.11 states that effective on and after July 1, 2011, the operator of a petroleum refinery or a 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 is not part of petroleum refinery nor is the flaring capacity greater than 50 MMBtu/hr.

Compliance with the rule is expected.

#### **Rule 4409 COMPONENTS AT LIGHT CRUDE OIL PRODUCTION FACILITIES, NATURAL GAS PRODUCTION FACILITIES, AND NATURAL GAS PROCESSING FACILITIES**

The purpose of Rule 4409 is to limit VOC emissions from leaking components at light crude oil production facilities, natural gas production facilities and natural gas processing facilities. The rule establishes definitions for leaking components and requirements for inspection, identification, maintenance and repair of leaking components. Administrative and recordkeeping requirements are specified, including submission of an operator's management plan for each applicable facility.

The following condition will be on the ATC to ensure compliance with current requirements for light crude oil and natural gas production and processing facilities.

- The operator shall follow all applicable sections of District Rule 4409, Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities. [District Rule 4409]

#### **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. Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's engineering evaluation (this document) demonstrates that the project includes Best Performance Standards (BPS) for each class and category of greenhouse gas emissions unit (Appendix G). The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

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 § 15031 (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 the ATCs subject to the permit conditions on the attached draft ATC in **Appendix H**.

**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-2980-77-0	3020-02-E	2.29 MMBtu/hr	\$412

**Appendices**

- A: Permit to Operate (Tank S-2980-26-1)
- B: PE1 Calculation (Tank S-2980-26-1)
- C: Quarterly Net Emissions Change (QNEC)
- D: BACT Guidelines and Analysis
- E: HRA and AAQA Summary
- F: Compliance Certification
- G: Draft Authority to Construct
- H: Emissions Profile
- I: BPS for VOC Control/Gas Disposal



## **APPENDIX A**

**Permit to Operate S-2980-26-1**

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** S-2980-26-1

**EXPIRATION DATE:** 04/30/2014

**SECTION:** 30 **TOWNSHIP:** 30S **RANGE:** 26E

**EQUIPMENT DESCRIPTION:**

125 BBL SUMP TANK

## PERMIT UNIT REQUIREMENTS

---

1. Formerly S-1552-23-0
2. Crude oil throughput shall not exceed 50 barrels per day based on a monthly average. [District Rule 4623]
3. Permittee shall maintain monthly records of average daily crude oil throughput and shall submit such information to the APCO 30 days prior to the expiration date indicated in the Permit to Operate. [District Rule 4623]
4. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 4623]

These terms and conditions are part of the Facility-wide Permit to Operate.

## **APPENDIX B**

### **PE1 Calculations (Tank S-2980-26-1)**

output

TANK ID	TANK USE	SJVUAPCD PERMIT #	TANK TYPE H OR V	SHELL DIMENSIONS		CAPACITY (BBL)	ROOF TYPE (C/D)	VENT PSIG	
				D (FT)	Hs (FT)			VAC.	PRESS.
3	sump	S-2980-26	VERTICAL	8.0	14.0	125.3	CONE	-0.03	0.03

TANK ROOF		PAINT FACTOR	LIQUID DATA				CONSTANT LEVEL?	VAPOR MOL. WT.	VOC CNTRL %EFF (w/w)
COND.	COLOR		TYPE	Ht=H(lx)	Kp	RVP			
GOOD	GRAY	0.68	CRUDE	12.0	0.75	5.00	NO	50.00	0.0

**\*\*UNCONTROLLED EMISSIONS\*\***

CALENDAR		SURFACE T(la) F	CALC TVP @ T(la)	RATE (BBL/MON)	TURNOVER PER MON.	FAC-(Kn)	VOC (LBM/MONTH)			TOTAL (LBM/QTR)
QUARTER	MONTH						Ls	Lw	TOTAL (Lt)	
FIRST	JANUARY	60.88	2.93	1550	17.31	0.314	13.21	53.41	66.62	228.28
	FEBRUARY	65.13	3.18	1400	15.64	0.314	18.44	52.39	70.83	
	MARCH	71.56	3.59	1550	17.31	0.314	25.28	65.55	90.82	
SECOND	APRIL	74.79	3.82	1500	16.75	0.314	40.39	67.39	107.77	381.42
	MAY	80.34	4.23	1550	17.31	0.314	54.43	77.11	131.53	
	JUNE	84.63	4.57	1500	16.75	0.314	61.49	80.62	142.11	
THIRD	JULY	86.88	4.75	1550	17.31	0.314	67.06	86.72	153.78	415.05
	AUGUST	84.72	4.57	1550	17.31	0.314	59.10	83.44	142.54	
	SEPTEMBER	79.91	4.19	1500	16.75	0.314	44.69	74.04	118.73	
FOURTH	OCTOBER	73.21	3.71	1550	17.31	0.314	32.60	67.60	100.20	239.93
	NOVEMBER	65.32	3.19	1500	16.75	0.314	18.34	56.34	74.68	
	DECEMBER	60.32	2.90	1550	17.31	0.314	12.23	52.82	65.05	

**\*\*CONTROLLED EMISSIONS (BASED ON MONTHLY CALCULATIONS)\*\***

CALENDAR		SURFACE T(la) F	CALC TVP @ T(la)	RATE (BBL/QTR)	TURNOVER PER QTR.	FAC-(Kn)	VOC (LBM/QTR)		
QUARTER	MONTH						Ls	Lw	TOTAL (Lt)
FIRST	JAN-MAR	65.86	3.23	4500	50	0.314	57	171	228
SECOND	APR-JUN	79.92	4.20	4550	51	0.314	156	225	381
THIRD	JUL-SEP	83.84	4.51	4600	51	0.314	171	244	415
FOURTH	OCT-DEC	66.28	3.26	4600	51	0.314	63	177	240
QUARTERLY AVERAGE		73.97	3.80	4563			112	204	316
DAILY AVERAGE (LB/DAY, BASED ON MONTHLY CALCULATIONS)							1.2	2.2	3.5
ANNUAL EMISSIONS (LB/YEAR, BASED ON MONTHLY CALCULATIONS)							447	817	1265

Tank Emission Calculation Spreadsheet, version 01/23/03

\*✓

## **APPENDIX C**

### **Quarterly Net Emissions Change**

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

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

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

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	171	0	171
SO <sub>x</sub>	35	0	35
PM <sub>10</sub>	20	0	20
CO	929	0	929
VOC	158	0	158

## **APPENDIX D**

### **BACT Guidelines & Analysis**

[Per » B A C T » Bact Guideline.asp?category Level1=1&category Level2=4&category Level3=2&last Update=12 » 31 :](#)

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**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 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. For background information, see Permit Specific BACT Determinations on [Details Page](#).**



[Per » B A C T » Bact Guideline.asp?category\\_Level1=7&category\\_Level2=3&category\\_Level3=1&last Update=10 » 1 :](#)

Back

**Best Available Control Technology (BACT ) Guideline 7.3.1  
Last Update: 10/1/2002**

**Petroleum and Petrochemical Production - Fixed Roof Organic Liquid  
Storage or Processing Tank, < 5,000 bbl Tank capacity \*\***

<b>Pollutant</b>	<b>Achieved In Practice or in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	PV-vent set to within 10% of maximum allowable pressure	99% control ( Waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of noncondensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available); or equal).	

*\*\* Converted from Determinations 7.1.11 (10/01/02).*

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is 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. For background information, see Permit Specific BACT Determinations on [Details Page](#).**

## **Top Down BACT Analysis for NOx and VOC Emissions:**

### **Step 1 - Identify all control technologies**

The SJVUAPCD BACT Clearinghouse guideline 1.4.2 (12/31/1998), identifies achieved in practice and technologically feasible BACT for "Waste Gas Flare – Incinerating Produced Gas" as follows:

1. Steam-assisted or air-assisted or Coanda effect burner when steam unavailable – achieved in practice

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

The above listed technology is technologically feasible.

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

1. Steam-assisted or air-assisted or Coanda effect burner when steam unavailable – achieved in practice

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

Only one control technology is identified and this technology is achieved in practice; therefore, a cost effectiveness analysis not necessary.

### **Step 5 - Select BACT for NOx and VOC**

The use of Coanda effect burner when steam is unavailable is selected as BACT for NOx and VOC emissions.

## **APPENDIX E**

### **HRA and AAQA Summary**

## San Joaquin Valley Air Pollution Control District Risk Management Review

To: Dolores Gough, AQE – Permit Services  
 From: Kyle Melching – Technical Services  
 Date: August 3, 2012  
 Facility Name: San Joaquin Facilities Mgt.  
 Location: Light Oil Central  
 Application #(s): S-2980-77-0  
 Project #: S-1122041

RECEIVED  
 AUG - 7 2012  
 SJVAPCD  
 Southern Region

### A. RMR SUMMARY

Categories	Unit 77-0 Flare	Project Totals	Facility Totals
Prioritization Score	0.04	0.04	>1
Acute Hazard Index	0.00	0.00	0.00
Chronic Hazard Index	0.02	0.02	0.02
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	2.38E-06	2.38E-06	4.85E-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 # 77-0

{1898}The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N

Waste gas/Natural gas usage shall not exceed 9.125 MMScf/yr [District Rule 2201] N

Unit S-2980-26 will be cancelled upon implementation of ATC for this project to be finalized.

**B. RMR REPORT**

**I. Project Description**

Technical Services received a revised request on July 31, 2012 to perform an Ambient Air Quality Analysis and a Risk Management Review for the use of a Waste Gas 2.29 mmBtu/hr flare.

**II. Analysis**

Technical Services performed a prioritization using the District's HEARTs database. Emissions were calculated using the Oilfield Natural Gas-Fired and Waste Gas Flare spreadsheet. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905, March 2, 2001), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEARTs database. The prioritization score for the facility was less than 1.0 (see RMR Summary Table), but the facility's total prioritization score exceeded 1.0. Therefore, a refined analysis was required and performed. AERMOD was used, with the parameters outlined below and concatenated meteorological data for Bakersfield 2005 to 2009 to determine the maximum dispersion factor at the nearest residential and business receptors. These dispersion factors were input into the HARP model to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

<b>Analysis Parameter (Unit 77)</b>			
<b>Closest Receptor – Resident (m)</b>	<b>940</b>	<b>Stack Direction</b>	<b>Vertical</b>
<b>Stack Height (m)</b>	<b>6.100</b>	<b>Gas Exit Temp. (K)</b>	<b>1273</b>
<b>Stack Diameter (m)</b>	<b>0.265</b>		
<b>Gas Exit Velocity (m/sec)</b>	<b>0.297</b>		

Technical Services also performed modeling for criteria pollutants CO, NOx, Sox, PM<sub>10</sub>, and PM<sub>2.5</sub>; as well as a RMR. The emission rates used for criteria pollutant modeling were

	NOx	Sox	CO	PM10	PM2.5
Lbs/hr	0.16	0.03	0.85	0.02	0.02
Lbs/yr	1,365	281	7,428	161	161

The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***  
Values are in  $\mu\text{g}/\text{m}^3$

Steam Generator	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Pass <sup>2</sup>	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>3</sup>	Pass <sup>3</sup>
PM2.5	X	X	X	Pass <sup>3</sup>	Pass <sup>3</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The project was compared to the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. The criteria pollutant 1-hour value passed using TIER I NO<sub>2</sub> NAAQS modeling

<sup>2</sup>The project was compared to the 1-hour SO<sub>2</sub> National Ambient Air Quality Standard that became effective on August 23, 2010 using the District's approved procedures.

<sup>3</sup>The maximum predicted concentration for emissions of these criteria pollutants from the proposed unit are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

### III. Conclusion

The acute and chronic indices are below 1.0; and the cancer risk is **2.38E-06**; which is greater than 1 in a million, but less than 10 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT) for VOCs.**

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 proposed unit.

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

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.

### Attachments:

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score with toxic emissions summary
- D. HEARTS – Facility Summary
- E. AAQA spreadsheet

**AAQA for S-1122041 ( S-2980-77-0 )**  
**All Values are in ug/m<sup>3</sup>**

RECEIVED  
 AUG - 7 2012  
 S. W. APCD  
 Southern Region

	<b>NOx 1 Hour</b>	<b>NOx Annual</b>	<b>CO 1 Hour</b>	<b>CO 8 Hour</b>	<b>SOx 1 Hour</b>	<b>SOx 3 Hour</b>	<b>SOx 24 Hour</b>	<b>SOx Annual</b>	<b>PM 24 Hour</b>	<b>PM Annual</b>
STCK1	1.477E+01	3.284E-01	1.046E+02	4.186E+01	3.692E+00	2.624E+00	5.667E-01	9.014E-02	3.778E-01	5.165E-02
Background	1.224E+02	3.252E+01	4.078E+03	2.563E+03	3.900E+01	1.960E+02	8.000E+00	1.800E+01	2.670E+02	8.300E+01
<b>Facility Totals</b>	1.372E+02	3.285E+01	4.182E+03	2.605E+03	4.269E+01	1.986E+02	8.567E+00	1.809E+01	2.674E+02	8.305E+01
<b>AAQS</b>	188.68	56	23000	10000	195	1300	105	80	50	30
	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Fail</b>	<b>Fail</b>

**EPA's Significance Level (ug/m<sup>3</sup>)**

<b>NOx 1 Hour</b>	<b>NOx Annual</b>	<b>CO 1 Hour</b>	<b>CO 8 Hour</b>	<b>SOx 1 Hour</b>	<b>SOx 3 Hour</b>	<b>SOx 24 Hour</b>	<b>SOx Annual</b>	<b>PM 24 Hour</b>	<b>PM Annual</b>
0.0	1.0	2000.0	500.0	0.0	25.0	5.0	1.0	5.0	1.0

## AAQA Emission (g/sec)

<i>Device</i>	<b>NOx 1 Hour</b>	<b>NOx Annual</b>	<b>CO 1 Hour</b>	<b>CO 8 Hour</b>	<b>SOx 1 Hour</b>	<b>SOx 3 Hour</b>	<b>SOx 24 Hour</b>	<b>SOx Annual</b>	<b>PM 24 Hour</b>	<b>PM Annual</b>
STCK1	2.02E-02	1.96E-02	1.07E-01	1.07E-01	3.78E-03	3.78E-03	3.78E-03	4.04E-03	2.52E-03	2.32E-03



## **APPENDIX F**

### **Compliance Certification**



**SAN JOAQUIN FACILITIES  
MANAGEMENT, INC.**

June 18, 2012

RECEIVED  
JUN 19 2012  
SJVAPCD  
Southern Region

Mr. Leonard Scandura  
Manager of Permit Services  
San Joaquin Valley Unified APCD  
34946 Flyover Court  
Bakersfield, CA 93308

**Subject: Project Number 1122041 – (S-2980) New ~~2.8~~ MMBTU/HR Flare  
Compliance Certification** *2.29*

Dear Mr. Scandura:

I hereby certify that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification.

The current project occurs at an existing facility. The applicant proposes to activate wells that will provide production capacity to existing operations at the site.

The project will provide production capacity to be used at the same location, the existing site will result in the least possible impact from the project.

A handwritten signature in black ink, appearing to read 'Bill Oliver', with a long horizontal flourish extending to the right.

Bill Oliver  
Operations Manager

## **APPENDIX G**

### **Draft Authority to Construct**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-2980-77-0

LEGAL OWNER OR OPERATOR: SAN JOAQUIN FACILITIES MGMT  
MAILING ADDRESS: 4520 CALIFORNIA AVENUE, SUITE 300  
BAKERSFIELD, CA 93309

LOCATION: LIGHT OIL CENTRAL STATIONARY SOURCE  
CA

SECTION: SW10 TOWNSHIP: 29S RANGE: 26E

EQUIPMENT DESCRIPTION:  
2.29 MMBTU/HR COANDA-EFFECT FLARE WITH AUTO-IGNITION (ARCO LEASE)

**CONDITIONS**

1. A flame shall be present at all times when combustible gases are vented through the flare. [District Rule 4311]
2. 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]
3. 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]
4. 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, Ringlemann 1/4 or 5% opacity. [District Rule 2201]
5. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. Total quantity of produced/natural gas combusted in flare shall not exceed 9.125 MMscf/yr. [District Rule 4102]
7. 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]
8. Emission rates from flare shall not exceed any of the following: PM10: 0.008 lb/MMBtu, SOx (as SO2): 0.014 lb/MMBtu, NOx (as NO2): 0.068 lb/MMBtu, VOC: 0.063 lb/MMBtu, CO: 0.37 lb/MMBtu. [District NSR Rule]
9. Sulfur content of produced gas combusted shall not exceed 5 gr/100 scf [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.

Seyed Sadredin, Executive Director APCO

**DAVID WARNER**, Director of Permit Services

S-2980-77-0 Aug 21 2012 10:02AM - GOUGHM Joint Inspection NOT Required

10. Flare shall be equipped with operational produced gas volume flow meter. [District Rule 2201]
11. Measured heating value and quantity of flared gas shall be used to determine compliance with heat input limits. [District Rule 2201]
12. The operator shall follow all applicable sections of District Rule 4409, Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities. [District Rule 4409]
13. Higher heating value of flared gas shall be determined using ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 1070 and 2201]
14. The flared gas sulfur concentration shall be determined annually using one of the following test methods: ASTM D1072, ASTM D3246, ASTM D6228 (GC-FPD), double GC for H<sub>2</sub>S and mercaptans, or equivalent test method with prior District approval. [District Rule 2201]
15. Permittee shall keep accurate daily and annual records of flare gas volumes, sulfur content, and higher heating value of flared gas and such records shall be retained for a period of 5 years and be made readily available for District inspection upon request. [District Rule 2201]
16. PTO S-2980-26 shall be canceled prior to or concurrently with the implementation of this ATC. [District Rule 2201]

**DRAFT**

## **APPENDIX H**

### **Emissions Profile**

Permit #: S-2980-77-0	<b>Last Updated</b>
Facility: SAN JOAQUIN FACILITIES MGMT	08/17/2012 GOUGHD

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	683.0	141.0	80.0	3714.0	632.0
Daily Emis. Limit (lb/Day)	3.7	0.8	0.4	20.3	3.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	171.0	35.0	20.0	929.0	158.0
Q2:	171.0	35.0	20.0	929.0	158.0
Q3:	171.0	35.0	20.0	929.0	158.0
Q4:	171.0	35.0	20.0	929.0	158.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

## **APPENDIX I**

### **BPS for VOC Control/Gas Disposal**



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

**Best Performance Standard (BPS) x.x.xx**

Date: 08/02/2011

<b>Class</b>	<b>VOC Control/Gas Disposal</b>	
<b>Category</b>	<b>Oil and Gas Production, Processing, and Refining</b>	
<b>Best Performance Standard (In order of recommendation)</b>	1) -Incineration in existing engine, boiler, etc that creates useful work – provided that equipment is available and practically capable of incinerating vapors (see equipment specific BPS for standards and requirements for new fired equipment) and currently burning fossil fuel; or,  -Transfer to Sales Gas Line – provided that access to sales gas line infrastructure is available; or,  -Reinjection to Formation – provided that access to a disposal well is available.	
	The following options supersede the BPS requirements above if: a) equipment listed above is not available; or, b) gas cannot safely be transferred to equipment listed above; or, c) used to control emergency gas releases.  2) -Incineration in new Thermal Oxidizer – see equipment specific Thermal Oxidizer BPS for standards and requirements for new equipment; or,  -Incineration in New Flare with >98% TOC destruction efficiency, steam assist, air assist when steam is not available, or Coanda effect and equipped with non-continuous automatic electronic or ballistic ignition; or,  -Incineration in Existing Thermal Oxidizer or Flare	
<b>Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions</b>	<b>Gas-Fired Equipment</b>	<b>100%</b>
	<b>Transfer to Sales Gas Line</b>	<b>100%</b>
	<b>Reinjection to Formation</b>	<b>100%</b>
	<b>New Thermal Oxidizer</b>	<b>100%</b>
	<b>New Flare</b>	<b>1.5%</b>
	<b>Existing Thermal Oxidizer or Flare</b>	<b>0%</b>
<b>District Project Number</b>	S-1103964	
<b>Evaluating Engineer</b>	Kristopher Rickards	
<b>Lead Engineer</b>	Leonard Scandura, P.E.	
<b>Public Notice: Start Date</b>	May 31, 2011	
<b>Public Notice: End Date</b>	June 30, 2011	
<b>Determination Effective Date</b>	August 2, 2011	