



OCT 23 2012

Anthony Munoz
Pacific Process Systems
5505 California Avenue, Suite 110
Bakersfield, CA 93309

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1123492

Dear Mr. Munoz:

Enclosed for your review and comment is the District's analysis of Pacific Process Systems's application for an Authority to Construct for a transportable well testing operation, at various unspecified locations, SJVAPCD.

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. Richard Edgehill of Permit Services at (661) 392-5617.

Sincerely,

David Warner
Director of Permit Services

DW: RUE/cm

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



OCT 23 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-1123492

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Pacific Process Systems's application for an Authority to Construct for a transportable well testing operation, at various unspecified locations, SJVAPCD.

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.

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**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 Pacific Process Systems for a transportable well testing operation, at various unspecified locations, SJVAPCD.

The analysis of the regulatory basis for this proposed action, Project #S-1123492, is available for public inspection at 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
Portable Well Test Flare

Facility Name:	Pacific Process Systems.	Date:	October 15, 2012
Mailing Address:	5055 California Avenue	Engineer:	Richard Edgehill
	Suite 110	Lead Engineer:	Richard Karrs
	Bakersfield, CA 93309		
Contact Person:	Anthony Munoz		
Telephone:	661-330-9946		
E-Mail:	amunoz@pps-equipment.com		
Application #(s):	S-2896-25-0		
Project #:	S-1123492		
Deemed Complete:	October 1, 2012		

I. Proposal

Pacific Process Systems has requested an Authority to Construct permit for a 10 MMBtu/hr portable flare for combustion of gas produced in well testing and drilling operations. Daily and annual flow of flared gas will be limited to 10 MMscf/day and 294 MMscf/yr. The equipment will be authorized to operate at various unspecified locations, SJVAPCD.

Please note that District Policy SSP 1915 requires that transportable flares be permitted according to District Policy APR 1020 which states that "an emissions unit with various unspecified locations must be prevented (by permit condition) from becoming part of another separate stationary source." The following condition from APR 1020 will be placed on the permit to reflect this requirement:

Unit must not be located and operated at an existing facility or operation such that it becomes part of an existing stationary source as defined by District Rule 2201. [District Rule 2201]

Pacific Process Systems includes units S-2896-1 through '-16, '-23, and '-24 for transportable well testing operations with flares. Each of these operations is considered as a separate stationary source and therefore two or more S-2896 units may not be operated at the same location simultaneously.

The following condition will be placed on the ATC:

Flare shall not be operated at any location in conjunction with any other flare or combustion equipment operated by Pacific Process Systems. [District Rule 2201] N

The project requires BACT and public notice. Offsets are not required.

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 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

III. Project Location

The equipment will be authorized to operate at various unspecified locations within the District. However, the equipment is restricted by permit condition not to be located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

After drilling petroleum production wells, the wells are tested to establish flow rates and pressure. The well test flare is equipped with a propane or natural gas pilot, automatic ignition system, and will combust gas produced during well testing.

V. Equipment Listing

S-2896-25-0: PORTABLE 10 MMSCF/DAY FLARE FOR WELL TESTING AND/OR DRILLING OPERATIONS WITH OPTIONAL USE AIR-ASSIST, WITH GAS /LIQUID SEPARATOR(S) OPERATED AT VARIOUS UNSPECIFIED LOCATIONS SJVAPCD

VI. Emission Control Technology Evaluation

Emissions from the flare include oxides of nitrogen (NO_x), carbon monoxide (CO), oxides of sulfur (SO_x), volatile organic compounds (VOCs), and particulate emissions less than 10 micron (PM₁₀).

Air Assist

Smoking may result from incomplete combustion due to the quantity and distribution of combustion air. Air assist ensures that the flare has enough air and turbulence to completely combust the gases for smokeless operation.

Propane/Natural Gas Pilot and Automatic Reignition

The flare will operate with a continuous propane/natural gas pilot and an automatic ignition system.

Sulfur Emissions

Sulfur emissions from the flare are expected not to exceed 5.0 gr S/100 scf. Therefore sulfur scrubbing is not required.

Visibility and VOC Control

Flares typically operate at 99% control efficiency for VOC. The well test flare being authorized by this project will be equipped with a shroud to reduce flame visibility, improve thermal destruction efficiency, and to prevent down drafts from extinguishing the flame.

VII. General Calculations

A. Assumptions

- The maximum quantity of gas combusted will be limited to 10 MMscf/day (416.67 MMBtu/hr), 294 MMscf/yr
- Heating value of flared gas is 1,000 Btu/scf (proposed and APR 1720)
- The flared natural gas will have a H₂S content less than 5 gr/100 scf, measured as sulfur (proposed)
- Fugitive emissions are considered to be negligible compared to combustion VOC emissions from the flare.
- Pilot gas emissions are assumed to be negligible when compared to emissions resulting from combustion of produced gas.

B. Emission Factors

Flare Emission Factors		
	lb/MMBtu	Source
NO _x	0.068	FYI 83 (AP 42 Sec 13.5)
*SO _x	0.0143	Mass Balance Equation
PM ₁₀	0.008	FYI 83 (AP 42 Sec 13.5), Applicant Proposed
CO	0.37	FYI 83 (AP 42 Sec 13.5)
VOC	0.063	FYI 83 (AP 42 Sec 13.5)

$$* \frac{5 \text{ gr} \cdot \text{S}}{100 \text{ dscf}} \left(\frac{\text{dscf}}{1,000 \text{ Btu}} \right) \frac{10^6 \text{ Btu}}{\text{MMBtu}} \left(\frac{1 \text{ lb}}{7,000 \text{ gr}} \right) \frac{64 \text{ lb} \cdot \text{SO}_2}{32 \text{ lb} \cdot \text{S}} = 0.0143 \frac{\text{lb} \cdot \text{SO}_2}{\text{MMBtu}}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

The well testing operation is new and therefore PE1 = 0 for NO_x, SO_x, PM₁₀, CO, and VOCs.

2. Post Project Potential to Emit (PE2)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.068	416.67	24	680.0
SO _x	0.01430	416.67	24	143.0
PM ₁₀	0.0080	416.67	24	80.0
CO	0.370	416.67	24	3,700.0
VOC	0.0630	416.67	24	630.0

Pollutant	Annual PE2		
	EF2 (lb/MMBtu)	Heat Input (MMBtu/year)	Annual PE2 (lb/year)
NO _x	0.068	294,000	19,992
SO _x	0.01430	294,000	4,204
PM ₁₀	0.0080	294,000	2,352
CO	0.370	294,000	108,780
VOC	0.0630	294,000	18,522

The emissions profile is included in **Attachment I**.

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (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 that have occurred at the source, and which have not been used on-site.

Since the well testing operation is considered its own stationary source and is new, SSPE1 is zero.

Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
S-2896-25-0	0	0	0	0	0

Pre Project SSPE (SSPE1)	0	0	0	0	0
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4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) 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 that have occurred at the source, and which have not been used on-site.

Since the flare is considered its own stationary source, the SSPE2 calculated below contains only its emissions.

Post Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
S-2896-25-0	19,992	4,204	2,352	108,780	18,522
Post Project SSPE (SSPE2)	19,992	4,204	2,352	108,780	18,522

5. Major Source Determination

Pursuant to Section 3.23 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.23.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	0	0	0	0	0
Post Project SSPE (SSPE2)	19,992	4,204	2,352	108,780	18,522
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As seen in the table above, the flare by itself is not an existing Major Source and also is not becoming a Major Source 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 Section 3.7 of District Rule 2201, BE = Pre-project Potential to Emit 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 Section 3.22 of District Rule 2201.

S-2896-25:

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant and the well testing operation is new.

Therefore, BE = 0 for NO_x, SO_x, PM₁₀, CO, and VOC.

BE (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
S-2896-25-0	0	0	0	0	0

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.*"

As discussed in Section VII.C.5 above, the facility is not a Major Source for NO_x, SO_x, PM₁₀, CO, or VOC emissions; therefore, the project does not constitute a SB 288 Major Modification for NO_x, SO_x, PM₁₀, CO, or VOC emissions.

8. Federal Major Modification

As discussed in Section VII.C.5 above, the facility is not a Major Source for NO_x, SO_x, PM₁₀, CO, or VOC emissions; therefore, the project does not constitute a Federal Major Modification for NO_x, SO_x, PM₁₀, CO, or VOC emissions.

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.

$$\text{QNEC (lb/qtr)} = \text{PE2 (lb/yr)}/4$$

QNEC			
Pollutant	PE2 (lb/yr)	PE1 (lb/yr)	QNEC (lb/qtr)
NO _x	19,992	0	4998
SO _x	4,204	0	1051
PM ₁₀	2,352	0	588
CO	108,780	0	27,195
VOC	18,522	0	4631

VIII. Compliance

Rule 2020 Exemptions

Section 6.14 states that “fugitive emissions sources and pressure vessels that are associated with an emissions unit for which a written permit is required shall be included as part of such emissions unit. A separate permit for the fugitive source or pressure vessel is not required. Therefore the three phase separator does not require a separate permit.

Compliance is expected.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

Rule 1020, Section 3.46 excludes air pollution abatement operations from the definition of “source operation”. Since the well test flare is designed to control the VOC and H₂S emissions from the well, the flare is considered an air pollution abatement operation and is not an emissions unit. Therefore, the well drilling and testing operation may be subject to BACT, but the flare used as a control device is not.

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- 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 a Major Modification.

*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 of this evaluation, the applicant is proposing to install a well drilling and testing operation with PE greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC. As discussed in Section VI above, the flare is a VOC control device (not emissions units) and therefore BACT is triggered only for VOC only.

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. Major Modification

As discussed in Section VII.C.7 above, this project does not constitute a Major Modification; therefore BACT is not triggered.

2. BACT Guideline

BACT Guideline 1.4.7 applies to [Waste Gas Flare – Oilfield Well Drilling and Testing Operation, < 50 MMscf/day].

See **Attachment II**.

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 **Attachment III**), BACT has been satisfied with the following:

NO_x: Not applicable
SO_x: Not applicable

PM₁₀: Not applicable
VOC: Elevated flare with propane/natural gas pilot

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	19,992	4204	2,352	108,780	18,522
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is not greater than the offset thresholds for any the pollutant; therefore offset calculations are not necessary and offsets will not be required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources and Major Modifications
- b. Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Modifications that increase the Stationary Source Potential to Emit (SSPE1) from a level below the emissions offset threshold level to a level exceeding the emissions offset threshold level for one or more pollutants;
- d. New stationary sources with a post-project Stationary Source Potential to Emit (SSPE2) exceeding the emissions offset threshold level for one or more pollutants;
- e. Any permitting action resulting in a Stationary Source Project Increase in Permitted Emissions (SSIPE) exceeding 20,000 lb/year per 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. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

As demonstrated in VII.C.7, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not 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. The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	680.0	100 lb/day	Yes
SO _x	143.0	100 lb/day	No
PM ₁₀	80.0	100 lb/day	No
CO	3,700.0	100 lb/day	Yes
VOC	630.0	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 _x	0	19,992	20,000 lb/year	No
SO _x	0	4,204	54,750 lb/year	No
PM ₁₀	0	2,352	29,200 lb/year	No
CO	0	108,780	200,000 lb/year	No
VOC	0	18,522	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.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPE = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	19,992	0	19,992	20,000 lb/year	No
SO _x	4,204	0	4,204	20,000 lb/year	No
PM ₁₀	2,352	0	2,352	20,000 lb/year	No
CO	108,780	0	108,780	20,000 lb/year	Yes
VOC	18,522	0	18,522	20,000 lb/year	No

As demonstrated above, the SSIPE for CO was 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 daily emissions in excess of 100 lb/day and SSIPE greater than 20,000 lb/year. 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 ATCs for this equipment.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

Emission rates shall not exceed any of the following: 0.008 lb-PM10/Mscf, 0.068 lb-NOx/Mscf (as NO₂), 0.063 lb-VOC/Mscf, or 0.37 lb-CO/Mscf. [District Rule 2201]

Sulfur compound concentration of gas flared shall not exceed 5 gr/100 scf. [District Rule 2201]

Daily and annual amounts of gas flared shall not exceed 10.0 MMscf/day and 294 MMscf/yr. [District rule 2201]

E. Compliance Assurance

1. Source Testing

The following testing condition is included on the proposed ATC:

Permittee shall document compliance with well gas sulfur compound concentration limit by performing sulfur content analysis of well gas upon startup at each new location of operation of flare. [District Rule 2201] N

Permittee shall document compliance with well gas sulfur compound concentration limit by performing sulfur content analysis of well gas upon startup at each new location of operation of flare. [District Rule 2201] N

2. Monitoring

The following monitoring condition is included:

Permittee shall inspect the flare in operation for visible emissions no less frequently than once every two weeks. If visible emissions are observed, corrective action shall be taken. If visible emissions persist, an EPA Method 9 test shall be performed within 72 hours. [District Rule 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) will appear on the permit to operate:

Permittee shall maintain accurate daily records indicating flare location, flared gas sulfur content at each location, and daily and annual rates of gas flared; and such records shall be made readily available for District inspection upon request for a minimum of 5 years. [District Rule 2201] N

4. Reporting

The facility is required to report the location at which the flare is operating. The following condition will be placed on the permit to show compliance with this section.

Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]

F. Ambient Air Quality Analysis

Section 4.14 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. Technical Services Division performed modeling for criteria pollutants CO, NO_x, SO_x and PM₁₀. The results from the Criteria Modeling are as follows:

The results from the Criteria Pollutant Modeling are as follows:

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

Well Test Flare	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass ²	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ¹	Pass ¹
PM _{2.5}	X	X	X	Pass ³	Pass ³

*Results were taken from the attached PSD spreadsheet.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

²The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010, using the District's approved procedures.

³For this case as per District procedure, minor PM_{2.5} sources are modeled only for primary PM_{2.5} concentrations, and these concentrations are compared to the 24-hour SIL of 1.2 $\mu\text{g}/\text{m}^3$ and the annual SIL of 0.3 $\mu\text{g}/\text{m}^3$.

As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, PM₁₀, or SO_x. Refer to **Attachment IV** of this document for the full AAQA report from Technical Services.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). Per FYI 83, when BACT is required for PM₁₀ the visible emissions will be limited to less than Ringelmann ¼ and less than 5% opacity. As long as the flaring system (with air assist) is operating correctly, compliance with this rule is expected.

Rule 4102 Nuisance

Section 4.0 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 (**Attachment IV**), 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-2896-25-0	0.09 per million	No

TBACT is not required. However the following condition is required:

Flare shall always operate at least 25 meters away from any property boundary or receptor.[District Rule 4102] N

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. For natural gas the EPA F-factor (adjusted to 60°F) is 8710 dscf/MMBtu (40 CFR 60 Appendix B).

$$\begin{aligned}
 \text{PM}_{10} \text{ Emission Factor:} & \quad 0.008 \text{ lb-PM}_{10}/\text{MMBtu} \\
 \text{Percentage of PM as PM}_{10} \text{ in Exhaust:} & \quad 100\% \\
 \text{Exhaust Oxygen (O}_2\text{) Concentration:} & \quad 3\% \\
 \text{Excess Air Correction to F Factor} = & \quad \frac{20.9}{(20.9 - 3)} = 1.17
 \end{aligned}$$

$$GL = \left(\frac{0.008 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left(\frac{8,710 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

$$GL = 0.0055 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Rule 4311 Flares

This rule limits VOC and NOx emissions from flares. The flare is a separate stationary source which has a potential to emit less than 10 tons/yr NOx and 10 tons/yr VOCs. Therefore the facility is exempt from all requirements of the rule except the record-keeping requirements of Section 6.2.4. Section 6.2.4 states that “beginning January 1, 2007 facilities claiming an exemption pursuant to Section 4.3 shall record annual throughput, material usage, or other information necessary to demonstrate an exemption under that section.” Facility will keep records of annual volumes of gas combusted in the flares to ensure that NOx and VOC emissions remain below 10 tons/yr. Therefore compliance is expected.

Rule 4801 Sulfur Compounds

Rule 4801 requires that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the

point of discharge: two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO₂), on a dry basis averaged over 15 consecutive minutes.

Emission calculations were calculated using a fuel with a 5 gr/100 dscf sulfur content. Therefore, the maximum SO_x ppmv are calculated to be:

$$\begin{aligned} \text{SO}_x &= (5 \text{ gr}/100 \text{ dscf fuel}) \times (1 \text{ lb}/7000 \text{ gr S}) \times (1 \text{ mol}/32 \text{ lb S}) \times (379.5 \text{ dscf S}/1 \text{ mol S}) \times \\ &\quad (1 \text{ dscf fuel}/1000 \text{ Btu}) \times (1 \times 10^6 \text{ Btu}/8710 \text{ dscf}) \times (1 \times 10^6) \\ &= 9.7 \text{ ppmv} < 2,000 \text{ ppmv} \end{aligned}$$

California Health & Safety Code 42301.6 (School Notice)

Pursuant to California Health and Safety Code 42301.6, a school notice is required for sites located within 1,000 of a school. This flare will be operating at various sites throughout the District. To insure that the flare is not located within 1,000 feet of a school the following condition will be placed on the permits,

The equipment shall not be located within 1000 ft. of any K-12 school. [District Rule 2201]

California Environmental Quality ACT (CEQA)

The California Environmental Quality Act (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 San Joaquin Valley Unified Air Pollution Control District (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.
- 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.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project consists of issuing a permit for a piece of transportable equipment to be used at various locations within the District. The District makes the following findings regarding this project: 1) Issuance of the permit does not have a significant environmental impact. 2) Assessment of potential environmental effects resulting from the use of the permitted transportable equipment is the responsibility of the Lead Agency approving the specific project, and will be determined on a project specific basis. The District has determined that no additional findings are required.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct S-2896-25-0 subject to the permit conditions on the attached draft Authority to Construct in **Attachment V**.

X. Billing Information

The fee schedule is based on the proposed throughput of the flare.

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-2896-25-0	3020-02-H	417 MMBtu/hr	\$1030.00

Attachments

- I: Emissions Profiles
- II: BACT Guideline
- III: Top Down BACT Analysis
- IV: AAQA Summary and HRA
- V: Draft ATC

ATTACHMENT I

Emissions Profile

Permit #: S-2896-25-0	Last Updated
Facility: PACIFIC PROCESS SYSTEMS	10/15/2012 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	19992.0	4204.0	588.0	108780.0	18522.0
Daily Emis. Limit (lb/Day)	680.0	143.0	588.0	3700.0	630.0
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	4998.0	1051.0	588.0	27195.0	4630.0
Q2:	4998.0	1051.0	588.0	27195.0	4630.0
Q3:	4998.0	1051.0	576.0	27195.0	4631.0
Q4:	4998.0	1051.0	576.0	27195.0	4631.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

ATTACHMENT II

BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.7*

Last Update 8/27/1999

Waste Gas Flare - Oilfield Well Drilling and Testing Operation, < 50 MMscf/day

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Elevated Flare with propane fueled pilot light		

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**

ATTACHMENT III

BACT Analysis

Top Down BACT Analysis for NO_x, SO_x and PM₁₀

The SJVUAPCD BACT Clearinghouse Guideline 1.4.7, 1st quarter 2006, does not identify technologically feasible or achieved in practice BACT for NO_x, SO_x and PM₁₀ emissions from Waste Gas Flares – Oilfield well drilling and testing operation < 50 MMscf/day.

“Emission unit “ is defined in Section 3.15 of Rule 2201 an “an identifiable operation or piece of process equipment such as a source operation which emits, may emit, or result in the emissions of any affected pollutant directly or as fugitive emissions.”

The gas must be disposed of after flow measurement to prevent safety hazard from the release of volatile organic compounds (VOC) and H₂S. The flare is expected to control VOC emissions by at least 99% over uncontrolled venting of the produced gas. H₂S in the produced gas is expected to be entirely converted to SO_x. In this case, the oil production well that produces the gas is the emissions unit, and the flare is an emission control device.

Rule 1020, Section 3.46 excludes air pollution abatement operations from the definition of “source operation”. Since the well test flare is designed to control the VOC and H₂S emissions from the well, the flare is considered an air pollution abatement operation and is exempt from the definition of emissions unit. The well drilling and testing operation may be subject BACT, the control device selected as BACT is not. Therefore, BACT is not required for NO_x, SO_x and PM₁₀.

Top Down BACT Analysis for VOC

1. BACT Analysis for VOC Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.4.7, 1st quarter 2006, identifies technologically feasible and achieved in practice BACT for VOC emissions from Waste Gas Flares – Oilfield well drilling and testing operation < 50 MMscf/day, as follows:

1. Elevated Flare with propane fueled pilot light

b. Step 2 - Eliminate technologically infeasible options

There are no technologically feasible options.

c. Step 3 - Rank remaining options by control effectiveness

1. Elevated Flare with propane fueled pilot light

d. Step 4 - Cost effectiveness analysis

Because the applicant is proposing the control technology shown to be effective in step 3 above, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

VOC emissions control using elevated flare with propane/natural gas pilot is selected as BACT.

ATTACHMENT IV

HRA/AAQA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Dan Klevann – Permit Services
 From: Cheryl Lawler – Technical Services
 Date: October 8, 2012
 Facility Name: Pacific Process Systems
 Location: Various Locations
 Application #(s): S-2896-25-0
 Project #: S-1123492

A. RMR SUMMARY

RMR Summary			
Categories	Natural Gas Well Test Flare (Unit 25-0)	Project Totals	Facility Totals
Prioritization Score	15.9	15.9	>1
Acute Hazard Index	0.00	0.00	0.00
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk	8.88E-08	8.88E-08	8.88E-08
T-BACT Required?	No		
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 25-0

1. The flare shall always operate at least 25 meters away from any property boundary or receptor.

B. RMR REPORT

I. Project Description

Technical Services received a request on October 1, 2012, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a 10 MMscf/day natural gas well test flare to operate at various locations. The flare is considered to be its own stationary source.

II. Analysis

For the Risk Management Review, toxic emissions from the project were calculated using Ventura County APCD emission factors for oilfield natural gas/waste gas flares. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed 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 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 flare 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 S-2896-25-0			
Source Type	Flare	Closest Receptor (m)	25
Effective Stack Height (m)	22.73	Closest Receptor Type	Residence & Business
Effective Diameter (m)	4.14	Project Location Type	Rural
Temperature (K)	1273	Effective Velocity (m/s)	56.24

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, PM₁₀, and PM_{2.5}, as well as the RMR. Emission rates used for criteria pollutant modeling were 153.9 lb/hr CO, 28.2 lb/hr NO_x, 11.9 lb/hr SO_x, 3.3 lb/hr PM₁₀, and 3.3 PM_{2.5}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Values are in µg/m³

Well Test Flare	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass	Pass
PM _{2.5}	X	X	X	Pass	Pass

*Results were taken from the attached PSD spreadsheet.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

²The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010, using the District's approved procedures.

³For this case as per District procedure, minor PM_{2.5} sources are modeled only for primary PM_{2.5} concentrations, and these concentrations are compared to the 24-hour SIL of 1.2 ug/m³ and the annual SIL of 0.3 ug/m³.

III. Conclusion

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

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the unit is **8.88E-08**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the unit is approved **without** 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 the proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

Attachments:

RMR Request Form
Flare Modeling Parameter Estimator
Prioritization
Refined Modeling Results
AAQA Results
Project Summary

ATTACHMENT V

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-2896-25-0

LEGAL OWNER OR OPERATOR: PACIFIC PROCESS SYSTEMS
MAILING ADDRESS: 5055 CALIFORNIA AVE, STE 110
BAKERSFIELD, CA 93309-1991

LOCATION: VARIOUS LOCATIONS
SJVUAPCD

EQUIPMENT DESCRIPTION:
PORTABLE 10 MMSCF/DAY FLARE FOR WELL TESTING AND/OR DRILLING OPERATIONS WITH OPTIONAL USE AIR-ASSIST, WITH GAS /LIQUID SEPARATOR(S) OPERATED AT VARIOUS UNSPECIFIED LOCATIONS SJVAPCD

CONDITIONS

1. The equipment shall not be located within 1000 ft. of any K-12 school. [CH&SC 42301.6]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]
4. Flare shall always operate at least 25 meters away from any property boundary or receptor. [District Rule 4102]
5. Flare shall not be operated at any location in conjunction with any other flare or combustion equipment operated by Pacific Process Systems. [District Rule 2201]
6. Unit S-2896-25-0 must not be located and operated at an existing facility or operation such that it becomes part of an existing stationary source as defined by District Rule 2201. [District Rule 2201]
7. This permit shall not authorize the utilization of any IC engine, or other combustion device requiring a separate permit, for powering the air assist to the flare. [District Rule 2201]
8. Flare shall be equipped with operational automatic re-ignition provisions. [District Rule 2201]
9. Gas line to flare shall be equipped with operational, volumetric flow rate indicator. [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.

Sayed Sadredin, Executive Director APCD

DAVID WARNER, Director of Permit Services

S-2896-25-0; Oct 17 2012 8:14AM - EDGEHLR : Joint Inspection NOT Required

10. Daily and annual amounts of gas flared shall not exceed 10 MMscf/day nor 294 MMscf/yr. [District Rules 2201 and 4102]
11. Flare air assist shall be used as necessary such that visible emissions do not exhibit Ringelmann 1/4 or greater or equivalent 5% opacity or greater for more than three minutes in any one hour. [District Rule 2201]
12. Sulfur compound concentration of gas flared shall not exceed 5 gr/100 scf. [District Rules 2201 and 4801]
13. Emission rates shall not exceed any of the following: 0.008 lb-PM10/MMBtu, 0.068 lb-NOx/MMBtu (as NO₂), 0.063 lb-VOC/MMBtu, or 0.37 lb-CO/MMBtu. [District Rules 2201 and 4201]
14. The flare shall be operated according to the manufacturer's specifications, a copy of which shall be maintained on site. [District Rule 2201]
15. Permittee shall inspect the flare in operation for visible emissions no less frequently than once every two weeks. If visible emissions are observed, corrective action shall be taken. If visible emissions persist, an EPA Method 9 test shall be performed within 72 hours. [District Rule 2201]
16. Permittee shall document compliance with well gas sulfur compound concentration limit by performing sulfur content analysis of well gas upon startup at each new location of operation of flare. [District Rule 2201]
17. The following test methods shall be used for well gas sulfur content: ASTM D3246 or double GC for H₂S and mercaptan. [District Rule 1081]
18. Permittee shall maintain accurate daily records indicating flare location, flared gas sulfur content at each location, and daily and annual rates of gas flared; and such records shall be made readily available for District inspection upon request for a minimum of 5 years. [District Rules 2201 and 4311]

DRAFT