



APR 26 2016

Travis Goddard
All Phase Oilfield Service Inc.
17346 Kranenburg Ave.
Bakersfield, CA 93314

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: S-8760
Project Number: S-1154230

Dear Mr. Goddard:

Enclosed for your review and comment is the District's analysis of All Phase Oilfield Service Inc.'s application for an Authority to Construct for three flares to operate at various locations.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. David Torii of Permit Services at (661) 392-5620.

Sincerely,



Arnaud Marjolle
Director of Permit Services

AM:dbt

Enclosures

cc: Tung Le, CARB (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Well Test Flares

| | | | |
|-------------------|--|----------------|-------------|
| Facility Name: | All Phase Oilfield Service Inc. | Date: | 3/23/16 |
| Mailing Address: | 17346 Kranenburg Ave. Bakersfield, CA 93314 | Engineer: | David Torii |
| | | Lead Engineer: | Dan Klevann |
| Contact Person: | Travis E. Goddard | | |
| Telephone: | 661-618-1995 | | |
| Application #(s): | S-8730-2-0, '3-0 and '4-0 | | |
| Project #: | 1154230 | | |
| Deemed Complete: | 12/21/15 | | |

I. Proposal

All Phase Oilfield Service Inc has requested Authority to Construct (ATC) permits for the installation of three flares for multiple uses including well testing. The flares will be authorized to operate at various unspecified locations.

II. Applicable Rules

| | |
|--|---|
| Rule 2201 | New and Modified Stationary Source Review Rule (4/21/11) |
| Rule 2410 | Prevention of Significant Deterioration (6/16/11) |
| Rule 2520 | Federally Mandated Operating Permits (6/21/01) |
| Rule 4001 | New Source Performance Standards (4/14/99) |
| Rule 4002 | National Emissions Standards for Hazardous Air Pollutants (5/20/04) |
| Rule 4101 | Visible Emissions (2/17/05) |
| Rule 4102 | Nuisance (12/17/92) |
| Rule 4201 | Particulate Matter Concentration (12/17/92) |
| Rule 4301 | Fuel Burning Equipment (12/17/92) |
| Rule 4311 | Flares (06/18/09) |
| 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 flares will be operated at various unspecified locations in the SJVAPCD. The flares shall not operate within 1,000 feet of a K-12 school. Therefore, the noticing provisions of CH&SC 2301.6 do not apply.

IV. Process Description

After drilling, and periodically during their productive lives, oil and gas wells are tested to establish their flow and pressure decline rates. The well test flares will incinerate the gases released from the well during testing.

V. Equipment Listing

S-8730-2-0, '3-0 and '4-0:

3" DIA. X 20 FT. TALL WELL TEST FLARE WITH CONTINUOUS ELECTRIC IGNITION POWERED BY SOLAR/BATTERY, OPERATED AT VARIOUS UNSPECIFIED LOCATIONS, SJVUAPCD

VI. Emission Control Technology Evaluation

A well test flare is an emission control and safety device used to incinerate combustible gases that would otherwise be released during testing of an oil or gas production well. The combustible gases include a significant fraction of VOC along with measurable concentrations of various sulfur compounds such as hydrogen sulfide (H₂S). By incinerating these gases, VOC emissions are reduced by at least 99%, while sulfur compounds are expected to be entirely converted to SO_x.

VII. General Calculations

A. Assumptions

Each Flare:

- Well test gas venting is limited to 1.0 MMscf/day and 288 MMscf/yr (applicant)
- Test gas higher heating value is 1,000 Btu/scf (applicant)
- Test gas sulfur content is 5 gr/100 scf (applicant)
- Pilot gas: propane (applicant)
- Pilot gas flow : 45 scf/hr (applicant)
- The pilot gas combustion emissions are assumed to be negligible
- VOC destruction efficiency is 99%
- No flares will operate together (at the same stationary source)

B. Emission Factors

| Flare Emission Factors | | |
|------------------------|-----------|-----------------------|
| | lb./MMBtu | Source |
| NO _x | 0.068 | FYI 83 |
| *SO _x | 0.0143 | Mass Balance Equation |
| PM ₁₀ | 0.008** | FYI 83 |
| CO | 0.37 | FYI 83 |
| VOC | 0.063 | FYI 83 |

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

**Note that the applicant has proposed the BACT-compliant PM10 emission factor pursuant to District FYI 83; therefore, visible emissions will be limited to less than Ringelmann ¼ and less than 5% opacity

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

| Pollutant | Daily PE2 (Each Flare) | | |
|------------------|---------------------------|---------------------------|------------------------------|
| | EF2 (lb./MMBtu) | Heat Input (MMBtu/day) | Daily Emissions (lb./day) |
| NO _x | 0.068 | 1000 | 68.0 |
| SO _x | 0.0143 | 1000 | 14.3 |
| PM ₁₀ | 0.008 | 1000 | 8.0 |
| CO | 0.37 | 1000 | 370.0 |
| VOC | 0.063 | 1000 | 63.0 |

| Pollutant | Annual PE2 (Each Flare) | | |
|------------------|----------------------------|---------------------------|------------------------|
| | EF2 (lb./MMBtu) | Heat Input (MMBtu/yr.) | Emissions (lb./yr.) |
| NO _x | 0.068 | 288,000 | 19,584 |
| SO _x | 0.0143 | 288,000 | 4,118 |
| PM ₁₀ | 0.008 | 288,000 | 2,304 |
| CO | 0.37 | 288,000 | 106,560 |
| VOC | 0.063 | 288,000 | 18,144 |

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 District's longstanding permitting practice is that oilfield service activities are distinct from oil and gas production operations and are therefore not part of the oil and gas production stationary source they serve.

Furthermore, each well test flare is its own stationary source and no other permitted equipment, including other well test flares, are allowed to operate as part of a well test flare's stationary source. Therefore, these are new facility's (stationary sources); therefore, the SSPE1s are equal to zero.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

The District's longstanding permitting practice is that oilfield service activities are distinct from oil and gas production operations and are therefore not part of the oil and gas production stationary source they serve.

Furthermore, each well test flare is its own stationary source and no other permitted equipment, including other well test flares, are allowed to operate as part of a well test flare's stationary source.

| SSPE2 (lb/year) | | | | | |
|-----------------|-----------------|-----------------|------------------|---------|--------|
| Permit Unit | NO _x | SO _x | PM ₁₀ | CO | VOC |
| S-8730-2-0 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |
| SSPE2 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |

| SSPE2 (lb/year) | | | | | |
|-----------------|-----------------|-----------------|------------------|---------|--------|
| Permit Unit | NO _x | SO _x | PM ₁₀ | CO | VOC |
| S-8730-3-0 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |
| SSPE2 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |

| SSPE2 (lb/year) | | | | | |
|-----------------|-----------------|-----------------|------------------|---------|--------|
| Permit Unit | NO _x | SO _x | PM ₁₀ | CO | VOC |
| S-8730-4-0 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |
| SSPE2 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |

5. Major Source Determination

Rule 2201 Major Source Determination:

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

- any ERCs associated with the stationary source

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 any pollutant.

Therefore BE=PE1.

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 not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

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

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (200,000 lb/year).

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.

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

| Rule 2201 Major Source Determination (lb/year) | | | | | | |
|---|-----------------|-----------------|------------------|-------------------|---------|--------|
| Each Flare | NO _x | SO _x | PM ₁₀ | PM _{2.5} | CO | VOC |
| SSPE1 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSPE2 | 19,584 | 4,118 | 2,304 | 2,304 | 106,560 | 18,144 |
| Major Source Threshold | 20,000 | 140,000 | 140,000 | 200,000 | 200,000 | 20,000 |
| Major Source? | No | No | No | No | No | No |

Note: PM2.5 assumed to be equal to PM10

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

| PSD Major Source Determination (tons/year) | | | | | | |
|---|-----|-----|-----|-----|-----|------|
| | NO2 | VOC | SO2 | CO | PM | PM10 |
| Estimated Facility PE before Project Increase | 0 | 0 | 0 | 0 | 0 | 0 |
| PSD Major Source Thresholds | 250 | 250 | 250 | 250 | 250 | 250 |
| PSD Major Source ? (Y/N) | n | n | n | n | n | n |

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

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, 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. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification. Therefore BACT is not triggered.

2. BACT Guideline

BACT Guideline 1.4.7 covers waste gas flares from oilfield well drilling and testing operations that incinerate less than 50 MMscf/day of waste gas.

3. Top-Down BACT Analysis

As shown by the Top-Down BACT Analysis in Appendix A, BACT is satisfied by the use of an elevated flare with a propane fueled pilot flame.

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_x | SO_x | PM₁₀ | CO | VOC |
| SSPE2 | 19,584 | 4,118 | 2,304 | 106,560 | 18,144 |
| Offset Thresholds | 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 all the pollutants; 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, 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.
- e. Any project which results in a Title V significant permit modification

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

New Major Sources are new facilities, which are also Major Sources. 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 Sections VII.C.7 and VII.C.8, 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

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 | 68.0 | 100 lb/day | N |
| SO _x | 14.3 | 100 lb/day | N |
| PM ₁₀ | 8.0 | 100 lb/day | N |
| CO | 370.0 | 100 lb/day | Y |
| VOC | 63.0 | 100 lb/day | N |

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 | 19,584 | 20,000 lb/year | No |
| SO _x | 0 | 4,118 | 54,750 lb/year | No |
| PM ₁₀ | 0 | 2,304 | 29,200 lb/year | No |
| CO | 0 | 106,560 | 200,000 lb/year | No |
| VOC | 0 | 18,144 | 20,000 lb/year | No |

As detailed above, offset thresholds were not surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

| SSIPE Public Notice Thresholds | | | | | |
|--------------------------------|--------------------|--------------------|--------------------|----------------------------------|----------------------------|
| Pollutant | SSPE2 (lb/year) | SSPE1 (lb/year) | SSIPE (lb/year) | SSIPE Public Notice Threshold | Public Notice Required? |
| NO _x | 19,584 | 0 | 19,584 | 20,000 lb/year | No |
| SO _x | 4,118 | 0 | 4,118 | 20,000 lb/year | No |
| PM ₁₀ | 2,304 | 0 | 2,304 | 20,000 lb/year | No |
| CO | 106,560 | 0 | 106,560 | 20,000 lb/year | Yes |
| VOC | 18,144 | 0 | 18,144 | 20,000 lb/year | No |

As demonstrated above, the SSIPEs for CO is greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for CO emissions in excess of 100 lb/day and 20,000 lb/yr. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

Daily and annual amounts of gas flared shall not exceed 1.0 MMscf/day nor 288 MMscf/yr. [District Rules 2201 and 4102]

- 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 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 0.144 MMscf/day and 52.56 MMscf/yr. [District rule 2201]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition(s) are listed 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 Rules 2201 and 4311] 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 B** of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII. C. 9. above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

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 4001 New Source Performance Standards (NSPS)

This rule incorporates by reference the NSPS established in Title 40, Code of Federal Regulations, Part 60 (40 CFR 60) and applies to any source subject to an applicable standard. However, no NSPS applies to these oil well test flares. No further discussion is required.

Rule 4002 National Emissions Standards for Hazardous Air Pollutants (NESHAP)

This rule incorporates by reference the NESHAP established in 40 CFR 61 and 63 and applies to any source subject to an applicable standard. However, no NESHAP applies to these oil well test flares. No further discussion is required.

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). The applicant has proposed the BACT-compliant PM10 emission factor pursuant to District FYI 83; therefore, visible emissions will be limited to less than Ringelmann ¼ and less than 5% opacity. As long as the flaring system is operating correctly, compliance with this rule is expected.

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source

or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Appendix B**), 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:

| RMR Summary | | | |
|---------------------------------------|---|-----------------------|------------------------|
| Categories | Three Well Test Flares (Units 2-0, 3-0, 4-0) | Project Totals | Facility Totals |
| Prioritization Score | 250.0 ¹ | 250.0 ¹ | >1.0 |
| Acute Hazard Index | 0.01 ¹ | 0.01 ¹ | 0.01 ¹ |
| Chronic Hazard Index | 0.00 ¹ | 0.00 ¹ | 0.00 ¹ |
| Maximum Individual Cancer Risk | 8.51E-07 ¹ | 8.51E-07 ¹ | 8.51E-07 ¹ |
| T-BACT Required? | No | | |
| Special Permit Requirements? | Yes | | |

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot. For natural gas the EPA F-factor (adjusted to 60°F) is 8710 dscf/MMBtu (40 CFR 60 Appendix B).

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

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

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

Rule 4311 Flares

This rule is intended to limit the emissions of NO_x, SO_x, and VOC from the operation of flares. However, pursuant to Section 4.3, except for the record keeping requirement of Section 6.1.4 the requirements of this rule do not apply to any flare located at a stationary source with potential emissions less than 10.0 tons per year of VOC and 10.0 tons per year of NO_x. Section 6.1.4 requires an operator claiming exemption under Section 4.3 to record annual throughput, material usage, or other information necessary to demonstrate compliance with the terms of the exemption. The following condition, previously stated in this evaluation, will ensure compliance with this recordkeeping requirement:

- *Permittee shall maintain accurate daily records of flare location and volume of well test gas flared. [District Rules 2201 and 4311]*

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:

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

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.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity 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 activity: 1) Issuance of the permit does not have a significant environmental impact. 2) Assessment of potential environmental effects resulting from the use of the transportable equipment on a development project 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 ATCs S-8730-2-0, '3-0 and '4-0 subject to the permit conditions on the attached draft ATCs in **Appendix C**.

X. Billing Information

| Annual Permit Fees | | | |
|--------------------|--------------|--------------------------|------------|
| Permit Number | Fee Schedule | Fee Description | Annual Fee |
| S-8730-2-0 | 3020-02 H | 15.0 MMBtu/hr or greater | \$1080 |
| S-8730-3-0 | 3020-02 H | 15.0 MMBtu/hr or greater | \$1080 |
| S-8730-4-0 | 3020-02 H | 15.0 MMBtu/hr or greater | \$1080 |

Appendixes

- A: BACT Guideline and BACT Analysis
- B: HRA and AAQA Summary
- C: Draft ATC BACT Analysis

APPENDIX A
BACT Guideline and BACT Analysis

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 in the SIP | Technologically Feasible | Alternate Basic Equipment |
|------------------|--|-------------------------------------|--------------------------------------|
| VOC | Elevated Flare with propane fueled pilot light | | |

BACT Analysis:

The well test flares are covered by BACT Guideline 1.4.7, which covers waste gas flares for oilfield well drilling and testing operations with a maximum flow rate less than 50 MMscf/day.

Step 1 – Identify All Possible Control Technologies:

1. Elevated flare with propane fueled pilot light – Achieved in Practice

Step 2 – Eliminate Technologically Infeasible Options:

All technologies listed in Step 1 are technologically feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. Elevated flare with propane fueled pilot light

Step 4 – Cost Effectiveness Analysis

The applicant has proposed the highest-ranked control option remaining from Step 3. No cost effectiveness analysis is required.

Step 5 – Select BACT

BACT is satisfied by the applicant's proposal to use an elevated flare with a propane fueled pilot light. No further discussion is required.

APPENDIX B
HRA and AAQA Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: David Torii – Permit Services
 From: Cheryl Lawler – Technical Services
 Date: February 24, 2016
 Facility Name: All Phase Oilfield Service Inc.
 Location: Various Unspecified Locations
 Application #(s): S-8730-2-0, 3-0, 4-0
 Project #: S-1154230

A. RMR SUMMARY

| RMR Summary | | | |
|--------------------------------|--|-----------------------|-----------------------|
| Categories | Three Well Test Flares (Units 2-0, 3-0, 4-0) | Project Totals | Facility Totals |
| Prioritization Score | 250.0 ¹ | 250.0 ¹ | >1.0 |
| Acute Hazard Index | 0.01 ¹ | 0.01 ¹ | 0.01 ¹ |
| Chronic Hazard Index | 0.00 ¹ | 0.00 ¹ | 0.00 ¹ |
| Maximum Individual Cancer Risk | 8.51E-07 ¹ | 8.51E-07 ¹ | 8.51E-07 ¹ |
| T-BACT Required? | No | | |
| Special Permit Requirements? | Yes | | |

¹Reported risks are for each individual flare. Each flare constitutes its own stationary source.

Proposed Permit Requirements

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

Units 2-0, 3-0, 4-0

1. The flare shall vent vertically upward. The vertical exhaust flow shall not be impeded any obstruction.

B. RMR REPORT

I. Project Description

Technical Services received a request on February 17, 2016, to perform an Ambient Air Quality Analysis and a Risk Management Review for the installation of three flares for multiple uses including well testing. The flares will be authorized to operate at various unspecified locations. Each flare is also considered to be its own stationary source.

II. Analysis

Toxic emissions for each flare were calculated using 2001 Ventura County Air Pollution Control District emission factors for Natural Gas fired external combustion and from a Refinery Gas composition analysis from the 2005 report, *FINAL REPORT Test of TDA's Direct Oxidation Process for Sulfur Recovery*. Emissions were then input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines. The prioritization score for the project was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2010-2014 from Hanford to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

| Analysis Parameters (each flare)¹ Units 2-0, 3-0, 4-0 | | | |
|---|--------|--|--------------------------|
| Source Type | Flare | Location Type | Rural |
| Effective Stack Height (m) | 8.92 | Closest Receptor (m) | 25 ² |
| Effective Diameter (m) | 1.17 | Type of Receptor | Residential/ Business |
| Effective Velocity (m/s) | 54.99 | Natural Gas/Waste Gas Process Rates (MMscf) | 0.042 hr 288 yr |
| Temperature (°K) | 810.93 | | |

¹All parameters are based on the District's Flare Modeling Parameter Estimator for open flares.

²The receptor distance of 25 meters represents the worst case distance that was modeled for this project.

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, and PM₁₀ with the emission rates below:

| Unit # | NO _x (Lbs.) | | SO _x (Lbs.) | | CO (Lbs.) | | PM ₁₀ (Lbs.) | |
|--------|------------------------|--------|------------------------|-------|-----------|---------|-------------------------|-------|
| | Day | Yr. | Day | Yr. | Day | Yr. | Day | Yr. |
| 2-0 | 68 | 19,584 | 14.3 | 4,118 | 370 | 106,560 | 8 | 2,304 |
| 3-0 | 68 | 19,584 | 14.3 | 4,118 | 370 | 106,560 | 8 | 2,304 |
| 4-0 | 68 | 19,584 | 14.3 | 4,118 | 370 | 106,560 | 8 | 2,304 |

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

| Three Flares | 1 Hour | 3 Hours | 8 Hours | 24 Hours | Annual |
|-------------------|-------------------|---------|---------|-------------------|-------------------|
| CO | Pass | X | Pass | X | X |
| NO _x | Pass ¹ | X | X | X | Pass |
| SO _x | Pass | Pass | X | Pass | Pass |
| PM ₁₀ | X | X | X | Pass ² | Pass ² |
| PM _{2.5} | X | X | X | Pass ² | Pass ² |

*Results were taken from the attached PSD spreadsheet.

¹The 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.

²The criteria pollutants 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 factor associated with the project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

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

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.

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

APPENDIX C
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-8730-2-0

LEGAL OWNER OR OPERATOR: ALL PHASE OILFIELD SERVICES
MAILING ADDRESS: 17346 KRANENBURG AVENUE
BAKERSFIELD, CA 93314

LOCATION: VARIOUS LOCATIONS, SJVAPCD

EQUIPMENT DESCRIPTION:

3" DIA. X 20 FT. TALL WELL TEST FLARE WITH CONTINUOUS ELECTRIC IGNITION POWERED BY SOLAR/BATTERY, OPERATED AT VARIOUS UNSPECIFIED LOCATIONS, SJVUAPCD

CONDITIONS

1. The equipment shall not be located within 1000 ft. of any K-12 school. [CH&SC 42301.6]
2. The flare shall vent vertically upward. The vertical exhaust flow shall not be impeded any obstruction. [District Rule 4102]
3. Flare shall only be used to combust gas released during well testing. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. 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]
6. The flare shall not be operated at any location in conjunction with any other flare or permitted equipment operated by All Phase Oilfield Service Inc.. [District Rule 2201]
7. The 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]
8. 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 1/4 or 5% opacity. [District Rules 2201 and 4101]
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.

Seyed Sadredin, Executive Director, JAPCO

Arnaud Marjolle, Director of Permit Services
S-8730-2-0, Mar 29 2018 3:04PM - TORID Joint Inspection NOT Required

10. Amounts of gas flared shall not exceed 1.0 MMscf/day nor 288 MMscf/yr. [District Rules 2201 and 4102]
11. Sulfur compound concentration of gas flared shall not exceed 5 gr/100 scf. [District Rules 2201 and 4801]
12. Emission rates shall not exceed any of the following: 0.008 lb-PM10/MMBtu, 0.068 lb-NO_x/MMBtu (as NO₂), 0.063 lb-VOC/MMBtu, or 0.37 lb-CO/MMBtu. [District Rule 2201]
13. The flare shall be operated according to the manufacturer's specifications, a copy of which shall be maintained on site. [District Rule 2201]
14. 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]
15. 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. [District Rule 2201]
16. The following test methods shall be used for well gas sulfur content: ASTM D3246 or double GC for H₂S and mercaptan. [District Rule 1081]
17. 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

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-8730-3-0

LEGAL OWNER OR OPERATOR: ALL PHASE OILFIELD SERVICES
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Seyed Sadredin, Executive Director, APCO

DRAFT
Arnaud Marjolle, Director of Permit Services

S-8730-3-0: Mar 29 2018 3:04PM - TORID : Joint Inspection NOT Required

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DRAFT

San Joaquin Valley
Air Pollution Control District

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DRAFT

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Seyed Sadredin, Executive Director, LAPCO

DRAFT

Arnaud Marjolle, Director of Permit Services
S-8730-4-0, Mar 29 2010 3:04PM - TORID : Joint Inspection NOT Required

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