San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

OCT 0 3 2011

Howard Caywood
West American Services
P O Box 22016
Bakersfield, CA 93390

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1105312

Dear Mr. Caywood:

Enclosed for your review and comment is the District's analysis of West American Services's application for an Authority to Construct for two oil well test flares, at various unspecified locations in the San Joaquin Valley.

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. Frank DeMaris of Permit Services at (559) 230-5804.

Sincerely,

David Warner
Director of Permit Services

DW: fgd

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
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www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

OCT 0 3 2011

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-1105312

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of West American Services's application for an Authority to Construct for two oil well test flares, at various unspecified locations in the San Joaquin Valley.

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. Frank DeMaris of Permit Services at (559) 230-5804.

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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 West American Services for two oil well test flares, at various unspecified locations in the San Joaquin Valley.

The analysis of the regulatory basis for this proposed action, Project #S-1105312, 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, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Two Multiple-Location Oil Well Test Flares

Facility Name:	West American Services	Date:	August 31, 2011
Mailing Address:	P O Box 22016 Bakersfield, CA 93390	Engineer:	Frank DeMaris
		Lead Engineer:	Sheraz Gill
Contact Person:	Howard Caywood		
Telephone:	(661) 377-0073		
Fax:	(661) 377-0074		
Application #s:	S-7965-1-0, '-2-0		
Project #:	S-1105312		
Deemed Complete:	May 3, 2011		

I. Proposal

West American Services ("WAS") has applied for Authority to Construct (ATC) permits for two multiple unspecified location test flares for use within the San Joaquin Valley air basin. These flares will be used to safely dispose of oil field gas from wells undergoing pre-production testing. Once testing is complete, the flares will be disconnected and moved to the next job. Though included under the same facility number (S-7965), each of the well test flares operated by WAS is a separate stationary source and may not be operated at the same location as any other WAS unit. Therefore, each flare is considered to be a separate stationary source. The following conditions will be included on the ATCs to ensure the validity of these assumptions:

- *Flare shall not be operated in well testing operations at any location in conjunction with any other flare or combustion equipment operated by West American Services. [District Rules 2201 and 4102]*

- *This unit shall 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]*

II. 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 Emission 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 (17/17/92)
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)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notification
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. Location

This equipment will be operated at various unspecified locations within the San Joaquin Valley. The District has verified that this equipment will not be located within 1,000 feet of the outer boundary of the nearest K-12 school. To ensure the validity of this determination, the following condition will be included on each ATC:

- *Unit shall not be located within 1000 feet of any K-12 school. [CH&SC 42301.6]*

IV. Process Description

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

V. Equipment Listing

Pre-Project Equipment Description:
These test flares are new units so there is no pre-project equipment to describe.

Post-Project Equipment Description:
S-7965-1-0: 51.8 MMBTU/HR WELL TEST FLARE INCLUDING PROPANE PILOT ASSEMBLY WITH AUTOMATIC ELECTRONIC IGNITION, PROPANE TANK, ASSOCIATED PIPING, AND ONE GAS/LIQUID SEPARATOR (VARIOUS UNSPECIFIED LOCATIONS)

S-7965-2-0: 51.8 MMBTU/HR WELL TEST FLARE INCLUDING PROPANE PILOT ASSEMBLY WITH AUTOMATIC ELECTRONIC IGNITION, PROPANE TANK, ASSOCIATED PIPING, AND ONE GAS/LIQUID SEPARATOR (VARIOUS UNSPECIFIED LOCATIONS)

The rating of the flares is calculated by multiplying the maximum daily gas flow rate by the maximum gas higher heating value, as follows:

R = (0.976 MMscf/day) x (1,274 Btu/scf) ÷ (24 hr/day) = 51.8 MMBtu/hr

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 (H_2S). By incinerating these gases VOC emissions are reduced by at least 99%, while sulfur compounds are expected to be entirely converted to SO_x.

District Rule 1020 (Definitions), Section 3.46.2, specifically excludes an air pollution abatement operation from the definition of a source operation. District Rule 2201 includes a source operation in the definition of an emissions unit. Since the well test flare is designed to control the VOC and sulfur compound emissions from the well, the flare is an air pollution abatement operation and is not a source operation or an emissions unit. Therefore, the well drilling and testing operation is potentially subject to the best available control technology (BACT) requirements, but the control device (the flare) selected as BACT is not.

VII. General Calculations

A. Assumptions

- Test well gas venting is limited to 0.976 MMscf/day and 142 MMscf/yr (applicant)
- Test gas higher heating value is 1,274 Btu/scf (applicant)
- Test gas sulfur content is 1.0 gr/100 scf
- Pilot gas flow is 5 scf/hr
- VOC destruction efficiency is 99%
- Oxygen-based F-factor is 8,578 dscf/MMBtu (corrected to 60 °F)
- The two flares will not operate at the same stationary source

B. Emission Factors

Table 1: Emission Factors		
Pollutant	EF (lb/MMBtu)	Source
NO_x	0.068	FYI-83, per Applicant
SO_x	0.0011	
PM_{10}	0.008	
CO	0.37	
VOC	0.063	

The emission factor for SO_x is calculated by mass balance based on the gas sulfur content as follows:

EF_{SOx} = (1.0 gr/100 ft^3) x (1 scf/1,274 Btu) x (1 lb/7,000 gr) x (10^6 Btu/MMBtu)
EF_{SOx} = 0.0011 lb/MMBtu

C. Emission Calculations

1. Pre-Project Potential to Emit (PE1)

Since these well test flares are new there is no pre-project equipment to describe.

2. Post-Project Potential to Emit (PE2)

Since the two flares are identical PE2 will be calculated for one only.

For NO_x:
PE2 = (0.068 lb/MMBtu) x (0.976 MMscf/day) x (1,274 Btu/scf) = 84.6 lb/day
PE2 = (0.068 lb/MMBtu) x (142 MMscf/yr) x (1,274 Btu/scf) = 12,302 lb/yr

For SO_x:
PE2 = (0.0011 lb/MMBtu) x (0.976 MMscf/day) x (1,274 Btu/scf) = 1.4 lb/day
PE2 = (0.0011 lb/MMBtu) x (142 MMscf/yr) x (1,274 Btu/scf) = 199 lb/yr

For PM_{10}:
PE2 = (0.008 lb/MMBtu) x (0.976 MMscf/day) x (1,274 Btu/scf) = 10.0 lb/day
PE2 = (0.008 lb/MMBtu) x (142 MMscf/yr) x (1,274 Btu/scf) = 1,447 lb/yr

For CO:
PE2 = (0.37 lb/MMBtu) x (0.976 MMscf/day) x (1,274 Btu/scf) = 460.1 lb/day
PE2 = (0.37 lb/MMBtu) x (142 MMscf/yr) x (1,274 Btu/scf) = 66,936 lb/yr

For VOC:
PE2 = (0.063 lb/MMBtu) x (0.976 MMscf/day) x (1,274 Btu/scf) = 78.3 lb/day
PE2 = (0.063 lb/MMBtu) x (142 MMscf/yr) x (1,274 Btu/scf) = 11,397 lb/yr

Daily and annual potential emissions are summarized in Table 2.

Table 2: PE2						
Unit		NO_x	SO_x	PM_{10}	CO	VOC
'-1-0	PE2 (lb/day)	84.6	1.4	10.0	460.1	78.3
	PE2 (lb/yr)	12,302	199	1,447	66,936	11,397
'-2-0	PE2 (lb/day)	84.6	1.4	10.0	460.1	78.3
	PE2 (lb/yr)	12,302	199	1,447	66,936	11,397

3. Quarterly Net Emissions Change (QNEC)

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

D. Stationary Source Calculations

1. 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 this is a new facility SSPE1 is zero for all pollutants.

2. 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.

The two flares will not operate at the same stationary source. Both flares could operate simultaneously if they were rented to separate oil well operators for testing, but then they would not be at the same stationary source.

Table 3 SSPE2 (lb/yr)					
	NO_x	SO_x	PM_{10}	CO	VOC
S-7965-1-0	12,302	199	1,447	66,936	11,397
S-7965-2-0					
SSPE2	**12,302**	**199**	**1,447**	**66,936**	**11,397**

3. Major Source Determination

Pursuant to Section 3.23 of District Rule 2201, a Major Source is a stationary source with post-project emissions, or 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."

Table 4: Major Source Determination (lb/yr)					
	NO_x	SO_x	PM_{10}	CO	VOC
SSPE2	12,302	199	1,447	66,936	11,397
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As shown in Table 4 this facility is not a major source for any pollutant.

With the April 2011 amendment to Rule 2201, $PM_{2.5}$ is an affected pollutant with a major source threshold of 100 ton/yr (200,000 lb/yr). Since $PM_{2.5}$ is a subset of PM_{10}, it is evident that SSPE2 for $PM_{2.5}$ emissions is less than or equal to 1,447 lb/yr and this facility is not a major source for $PM_{2.5}$. No further discussion is required.

4. Baseline Emissions

Pursuant to District Rule 2201, Section 3.7, BE for any pollutant is equal to the pre-project potential to emit for any emissions unit located at a non-major source. As shown in Section VII.D.3 of this document, this facility is not a major source for any affected pollutant. Therefore, BE = PE1 for all emissions units and all pollutants.

5. SB288 Major Modification

An SB288 Major Modification is defined in 40 CFR Part 51.165 (in effect on December 19, 2002) 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 shown in Section VII.D.3, this facility is not a major source for any pollutant. Therefore, it cannot undergo an SB288 major modification for any pollutant. No further discussion is required.

6. Federal Major Modification

As shown in Section VII.D.3, this facility is not a major source for any pollutant. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification. No further discussion is required.

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 for the following[2]:

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 SB288 Major Modification or a Federal Major Modification.

As shown in Sections VII.D.5 and VII.D.6 this proposal does not constitute an SB288 major modification or a federal major modification. As shown in Section I there are no existing emission units being modified or relocated as part of this project. As shown in Section VI of this document, the flares are air pollution abatement devices rather than emission units, so the flares themselves cannot trigger BACT. VOC emissions from the wells being tested, even after 99% control by the flares, is 78.3 lb/day, so BACT is triggered for the well testing operations for VOC.

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. BACT Determination

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

[2] 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.

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3 of the rule, emission offsets are required if SSPE2 equals or exceeds the following emission offset threshold levels for any one affected pollutant:

Table 5: Offset Thresholds (lb/yr)					
	NO_x	SO_x	PM_{10}	CO	VOC
SSPE1	0	0	0	0	0
SSPE2	12,302	199	1,447	66,936	11,397
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets Required?	No	No	No	No	No

2. Quantity of Offsets Required

As shown in Table 5 the offset threshold level is not exceeded for any pollutant. The offset requirements are not triggered and no further discussion is required.

C. Public Notice

1. Applicability

Pursuant to Section 5.4 of the rule, public notification and publication are required for the following types of applications:

5.4.1 New Major Sources, Federal Major Modifications, and SB288 Major Modifications
As shown in Sections VII.D.3, VII.D.5, and VII.D.6 this facility is not a new major source for any pollutant and does not constitute an SB288 major modification or a federal major modification. Public notice is not required under this provision.

5.4.2 Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one affected pollutant
As shown in Section VII.C.2, potential emissions of CO exceed 100 pounds in any one day. Public notice is required under this provision.

5.4.3 Modifications that increase SSPE1 from a level below the emissions offset threshold level to a level exceeding the emissions offset threshold level for one or more pollutants
As shown in Table 5 above, SSPE2 does not exceed the emissions offset threshold level for any pollutant. Public notice is not required under this provision.

5.4.4 New stationary sources with SSPE2 exceeding the emissions offset threshold level for one or more pollutants

As shown in Table 5 above, SSPE2 does not exceed the emissions offset threshold level for any pollutant. Public notice is not required under this provision.

5.4.5 Any permitting action resulting in a Stationary Source Project Increase in Permitted Emissions (SSIPE) exceeding 20,000 pounds per year for any one pollutant

Table 6: SSIPE (lb/yr)					
	NO_x	SO_x	PM_{10}	CO	VOC
SSPE2	12,302	199	1,447	66,936	11,397
SSPE1	0	0	0	0	0
SSIPE = SSPE2 – SSPE1	12,302	199	1,447	66,936	11,397
SSIPE > 20,000?	No	No	No	Yes	No

As shown in Table 6, SSIPE is greater than 20,000 lb/yr for CO. Public notice is required under this provision.

2. Public Notice Action

As discussed above, public noticing is required for this project for CO emissions in excess of 100 lb/day and CO SSIPE in excess of 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 Limitation (DEL)

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 practical manner, on a daily basis. DELs are also required to enforce the applicability of BACT. The following conditions will be included on the ATCs:

- *Daily and annual amounts of gas flared in well testing operations shall not exceed 0.976 MMscf/day and 142 MMscf/yr. [District Rule 2201]*
- *Emission from this unit shall not exceed 0.068 lb-NOx/MMBtu, 0.008 lb-PM10/MMBtu, 0.37 lb-CO/MMBtu, and 0.063 lb-VOC/MMBtu. [District Rule 2201]*
- *Sulfur compound concentration of well gas combusted during well testing operations shall not exceed 1.0 gr-S/100 scf. [District Rule 2201]*

E. Compliance Assurance

1. Source Testing

Source testing requirements are generally specified in an applicable prohibitory rule or in District Policy APR-1705, *Source Testing Frequency*. However, APR-1705 specifically excuses from testing those sources for which source testing is not practical. These flares are test flares that will frequently operate only a few days in any one location before being moved, so it is not practical to schedule source testing which may require weeks of lead time. However, it is feasible and necessary to collect well gas samples for testing to demonstrate compliance with the well gas sulfur limit. The following conditions will be included on the ATCs to ensure appropriate source testing:

- *Permittee shall demonstrate compliance with well gas sulfur compound limit upon startup at each new location by performing sulfur content analysis of well gas. [District Rule 2201]*

- *The following test methods shall be used for fuel gas sulfur content: ASTM D3246 or double GC for H2S and mercaptans. [District Rule 1081]*

2. Monitoring

Periodic monitoring is required to ensure compliance with the particulate matter and opacity limits. The following condition will be included on the ATCs to ensure adequate monitoring is conducted:

- *Permittee shall monitor 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 opacity test using EPA Method 9 shall be performed within 72 hours. [District Rule 2201]*

3. Record Keeping

Recordkeeping is required in order to demonstrate compliance with various requirements established under Rule 2201. The following conditions will be included on the ATCs to ensure adequate records are kept:

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

- *Permittee shall maintain records of fuel gas sulfur content test results. [District Rule 2201]*

- *All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]*

4. Reporting

Pursuant to District Policy APR-1020, *Multiple Location Permit Policy*, the operator of a multiple location permit unit must report each location it is operated at to the District. The following conditions will be included on the ATCs to ensure compliance:

- *Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070]*
- *The 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 1070]*

5. Installation, Operation, and Maintenance

Pursuant to Sections 5.6.2 and 5.6.3 of the rule, an ATC will include conditions to ensure that the new or modified source is built according to the specifications and plans included in the application, or which are necessary to assure construction and operation in the manner assumed in the application review. The following conditions will be included on the ATCs to ensure proper installation, operation, and maintenance:

- *Gas line to flare shall be equipped with operational, volumetric flow rate indicator. [District Rule 2201]*
- *Only propane shall be used as pilot fuel. [District Rule 2201]*
- *Flare shall only be used to combust gas released during oil well testing. [District Rule 2201]*

F. Ambient Air Quality Analysis

Section 4.14.1 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. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix C of this document for the AAQA summary sheet.

Criteria Pollutant Modeling Results

Flares	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x (and NO_2)	Pass	X	X	X	Pass
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass	Pass[1]
$PM_{2.5}$	X	X	X	Pass	Pass[3]

The proposed location is in an attainment area for NO_X, PM_{10}, 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, NO_2, PM_{10}, $PM_{2.5}$, CO, or SO_X.

Rule 2520 Federally Mandate Operating Permit

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

This rule defines and regulates visible emissions from any source operation. The following condition will be included on the ATCs to ensure compliance:

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

Rule 4102 Nuisance

This rule prohibits the emission of any air contaminant that causes nuisance, detriment, injury, or annoyance to any person or to the public. The following condition will be included on the ATCs to ensure compliance:

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

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR-1905, *Risk Management Policy for Permitting New and Modified Sources*, specifies that for an increase in emissions associated with a proposed new source or modification, the District must 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 C), the total facility prioritization score including this project was greater than one. Therefore, a health risk assessment was required to determine the short-term acute and long-term chronic exposure from this project. The results of the HRA are summarized in the following table:

RMR Summary				
Categories	**Oil Well Test Flare (Unit 1-0)**	**Oil Well Test Flare (Unit 2-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	27.2	27.2	>1	>1
Acute Hazard Index	0.02	0.02	0.04	0.04
Chronic Hazard Index	0.00	0.00	0.00	0.00
Maximum Individual Cancer Risk	**2.56E-06**	**2.56E-06**	5.12E-06	5.12E-06
T-BACT Required?	**Yes - VOCs**	**Yes - VOCs**		
Special Permit Conditions?	**Yes**	**Yes**		

Pursuant to APR-1905, an ATC application can be approved only if both the acute and chronic risk indices are less than 1.0 and the maximum individual cancer risk is less than 10.0 in a million. As shown above, the acute and chronic hazard indices are less than 1.0, so the application can be approved. In addition, the maximum individual cancer risk is greater than or equal to 1.0 and less than 10.0 in a million, so the application can be approved provided toxics best available control technology (T-BACT) is applied for VOC emissions. Pursuant to APR-1905, T-BACT is defined identically to BACT so the T-BACT requirement is satisfied by applying BACT for whatever pollutant triggered T-BACT. As shown by the top-down BACT analysis in Appendix B, the BACT/T-BACT requirement for VOC is satisfied by the applicant's proposal to use an elevated flare with a propane fueled pilot flame. The following condition will be included on the ATCs to ensure the validity of the assumptions used in this analysis:

- *The flare release height shall be at least 30 feet above surface grade. [District Rules 2201 and 4102]*

Rule 4201 Particulate Matter Concentration

This rule prohibits the emission of particulate matter from any source operation at a concentration greater than 0.1 grain per cubic foot of exhaust gas at dry standard conditions. The emission limit for these flares can be converted to a concentration as follows:

C = (0.008 lb-PM_{10}/MMBtu) x (7,000 gr/lb) x (1 lb-PM/lb-PM_{10}) ÷ (8,578 dscf/MMBtu)
C = 0.007 gr/dscf

Since 0.007 gr/dscf is less than the rule limit of 0.1 gr/dscf compliance with this rule is expected. The following condition will be included on the ATCs to ensure compliance:

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

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 4409 Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities

The components at the oil well being tested are subject to the requirements of this rule, which is intended to limit emissions of VOC from affected facilities. These test flares are VOC control devices that are not operated except to control well gas emissions from an oil well subject to this rule. Therefore, operation of the test flare is covered by NAICS code 21311, *Support Activities for Mining*, rather than code 21111, *Crude Petroleum and Natural Gas Extraction*. Therefore, the flares are not part of the crude oil production facility, as defined in Section 3.23, and are not subject to this rule. No further discussion is required.

Rule 4801 Sulfur Compounds

This rule prohibits the emission of sulfur compounds in a concentration exceeding 0.2% by volume (2,000 ppmv) calculated as SO_2. This limit of 2,000 ppmvd can be converted to its equivalent in lb/MMBtu as shown below:

EF = $(2{,}000/10^6)$ x (8,578 scf/MMBtu) x (64 lb-SO_2/lb-mol) ÷ (379.5 scf/lb-mol)
EF = 2.89 lb/MMBtu

As shown in Section VII.B of this document, the emission factor for SO_x emissions is 0.0011 lb/MMBtu. Since this limit is lower than the limit established under Rule 4801, compliance with the permitted emissions limit will ensure compliance with Rule 4801. Compliance is expected, and no further discussion is required.

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 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. Issue Authorities to Construct S-7965-1-0 and '-2-0 subject to the conditions on the attached draft Authorities to Construct included in Appendix A.

X. Billing Information

Billing Information		
Permit Number	**Fee Schedule**	**Description**
S-7965-1-0	3020-02-H	51.8 MMMBtu/hr
S-7965-2-0	3020-02-H	51.8 MMMBtu/hr

Appendices

Appendix A: Draft Authority to Construct
Appendix B: BACT Guideline and BACT Analysis
Appendix C: Health Risk Assessment and AAQA
Appendix D: QNEC Calculations

Appendix A
Draft Authority to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-7965-1-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: WEST AMERICAN SERVICES
MAILING ADDRESS: P.O. BOX 22016
BAKERSFIELD, CA 93390

LOCATION: UNSPECIFIED LOCATION
BAKERSFIELD, CA

EQUIPMENT DESCRIPTION:
51.8 MMBTU/HR WELL TEST FLARE INCLUDING PROPANE PILOT ASSEMBLY WITH AUTOMATIC ELECTRONIC IGNITION, PROPANE TANK, ASSOCIATED PIPING, AND ONE GAS/LIQUID SEPARATOR (VARIOUS UNSPECIFIED LOCATIONS)

CONDITIONS

1. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Flare shall not be operated in well testing operations at any location in conjunction with any other flare or combustion equipment operated by West American Services. [District Rules 2201 and 4102]
5. This unit shall 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]
6. Unit shall not be located within 1000 feet of any K-12 school. [CH&SC 42301.6]
7. Gas line to flare shall be equipped with operational, volumetric gas flow meter. [District Rule 2201]
8. Only propane shall be used as pilot fuel. [District Rule 2201]
9. Flare shall only be used to combust gas released during oil well testing. [District Rule 2201]
10. The flare release height shall be at least 30 feet above surface grade. [District Rules 2201 and 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director/APCO

DAVID WARNER, Director of Permit Services
S-7965-1-0 : Aug 31 2011 9:32AM – DEMARISF : Joint Inspection NOT Required

11. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070]
12. The 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 1070]
13. Daily and annual amounts of gas flared in well testing operations shall not exceed 0.976 MMscf/day and 142 MMscf/yr. [District Rule 2201]
14. Emission from this unit shall not exceed 0.068 lb-NOx/MMBtu, 0.008 lb-PM10/MMBtu, 0.37 lb-CO/MMBtu, and 0.063 lb-VOC/MMBtu. [District Rule 2201]
15. Sulfur compound concentration of well gas combusted during well testing operations shall not exceed 1.0 gr-S/100 scf. [District Rule 2201]
16. Permittee shall demonstrate compliance with well gas sulfur compound limit upon startup at each new location by performing sulfur content analysis of well gas. [District Rule 2201]
17. The following test methods shall be used for fuel gas sulfur content: ASTM D3246 or double GC for H2S and mercaptans. [District Rule 1081]
18. Permittee shall monitor 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 opacity test using EPA Method 9 shall be performed within 72 hours. [District Rule 2201]
19. Permittee shall maintain accurate daily records of flare location and volume of well test gas flared. [District Rules 2201 and 4311]
20. Permittee shall maintain records of fuel gas sulfur content test results. [District Rule 2201]
21. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-7965-2-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: WEST AMERICAN SERVICES
MAILING ADDRESS: P.O. BOX 22016
BAKERSFIELD, CA 93390

LOCATION: UNSPECIFIED LOCATION
BAKERSFIELD, CA

EQUIPMENT DESCRIPTION:
51.8 MMBTU/HR WELL TEST FLARE INCLUDING PROPANE PILOT ASSEMBLY WITH AUTOMATIC ELECTRONIC IGNITION, PROPANE TANK, ASSOCIATED PIPING, AND ONE GAS/LIQUID SEPARATOR (VARIOUS UNSPECIFIED LOCATIONS)

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CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
S-7965-2-0 : Aug 31 2011 9:32AM – DEMARISF : Joint Inspection NOT Required

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17. The following test methods shall be used for fuel gas sulfur content: ASTM D3246 or double GC for H2S and mercaptans. [District Rule 1081]
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19. Permittee shall maintain accurate daily records of flare location and volume of well test gas flared. [District Rules 2201 and 4311]
20. Permittee shall maintain records of fuel gas sulfur content test results. [District Rule 2201]
21. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

Appendix B
BACT Guideline and BACT Analysis

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 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 - Permit Specific BACT Determinations on Next Page(s)**

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. These flares are limited to 0.976 MMscf/day each, so they are covered by this guideline. In accordance with District Policy APR-1305, *Best Available Control Technology (BACT) Policy*, information from this Guideline will be cited without further analysis.

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 C
Health Risk Assessment Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Frank DeMaris – Permit Services
From:	Cheryl Lawler – Technical Services
Date:	August 10, 2011
Facility Name:	West American Services
Location:	Various Unspecified Locations
Application #(s):	S-7965-1-0, 2-0
Project #:	S-1105312

A. RMR SUMMARY

RMR Summary				
Categories	**Oil Well Test Flare (Unit 1-0)**	**Oil Well Test Flare (Unit 2-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	27.2	27.2	>1	>1
Acute Hazard Index	0.02	0.02	0.04	0.04
Chronic Hazard Index	0.00	0.00	0.00	0.00
Maximum Individual Cancer Risk	**2.56E-06**	**2.56E-06**	5.12E-06	5.12E-06
T-BACT Required?	**Yes - VOCs**	**Yes – VOCs**		
Special Permit Conditions?	**Yes**	**Yes**		

Proposed Permit Conditions

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

Units 1-0 & 2-0

1. The flare release height shall be at least 30 feet.

B. RMR REPORT

I. Project Description

Technical Services received a request on July 14, 2011, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for two 41.5 MMBtu/hr oil well test flares proposed to operate at various unspecified locations.

II. Analysis

For the Risk Management Review, toxic emissions from the project were calculated using Ventura County APCD AB2588 emission factors for 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 source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Analysis Parameters Units 1-0 & 2-0			
Source Type	Flare	**Closest Receptor (m)**	0*
Release Height (m)	9.14	**Closest Receptor Type**	Resident or Business
Effective Stack Diameter (m)	1.13	**Project Location Type**	Rural
Gas Exit Temperature (K)	1273	**Stack Gas Velocity (m/s)**	20

*A worst case receptor distance of 0 was used because the flares are proposed for use at various unspecified locations.

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx, PM_{10}, and $PM_{2.5}$, as well as the RMR. Emission rates used for criteria pollutant modeling were 17.17 lb/hr CO, 3.53 lb/hr NOx, 0.06 lb/hr SOx, 0.42 lb/hr PM_{10}, and 0.42 $PM_{2.5}$ for each flare.

The results from the Criteria Pollutant Modeling are as follows:

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

Flares	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.
[1]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).
[2]The 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.
[3]For 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/m^3 and the annual SIL of 0.3 ug/m^3.

III. Conclusions

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 Hazard Indices are below 1.0; and the Cancer Risk associated with the operation of **each flare is 2.56E-06**, which is greater than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **with** Toxic Best Available Control Technology (T-BACT).

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

Appendix D
QNEC Calculations

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC is calculated as follows:

QNEC = PE2 – BE, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr
PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr
BE = Baseline Emissions for each emissions unit, lb/qtr

Using the values in Sections VII.C.2 and VII.D.4 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year
$BE_{quarterly}$ = BE_{annual} ÷ 4 quarters/year

Since the two flares will not operate simultaneously at the same stationary source they are effectively under multiple specific limiting conditions, one for each pollutant, limiting the combination of two flares to the potential emissions from one flare. Therefore, QNEC will be calculated as the potential emissions from one flare shared equally between the two units.

Quarterly Net Emissions Increase (QNEC) (lb/qtr)							
Unit	Pollutant	PE2	BE	Quarter 1	Quarter 2	Quarter 3	Quarter 4
S-7965-1-0	NO_X	6,151	0	1,537	1,538	1,538	1,538
	SO_X	100	0	25	25	25	25
	PM_{10}	724	0	181	181	181	181
	CO	33,468	0	8,367	8,367	8,367	8,367
	VOC	5,699	0	1,424	1,425	1,425	1,425
S-7965-1-0	NO_X	6,151	0	1,537	1,538	1,538	1,538
	SO_X	99	0	24	25	25	25
	PM_{10}	723	0	180	181	181	181
	CO	33,468	0	8,367	8,367	8,367	8,367
	VOC	5,698	0	1,424	1,424	1,425	1,425