



**JUL 05 2012**

Terry Destrampe  
Holmes Western Oil Corporation  
P.O. Box 1405  
Taft, CA 93268

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1121670**

Dear Mr. Destrampe:

Enclosed for your review and comment is the District's analysis of Holmes Western Oil Corporation's application for an Authority to Construct for the modification of an existing non-compliant dormant 62.5 MMBtu/hr natural gas-fired steam generator to comply with the applicable requirements of District Rule 4320 and to increase the CO emission limit, at Holmes' Heavy Oil Western stationary source near Maricopa, CA within the SW/4 of Section 16, Township 11N, and Range 23W.

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 Ms. Ashley Dahlstrom of Permit Services at (661) 392-5612.

Sincerely,

David Warner  
Director of Permit Services

DW: ABD/cm

Enclosures

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

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

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
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**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
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JUL 05 2012

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

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1121670**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Holmes Western Oil Corporation's application for an Authority to Construct for the modification of an existing non-compliant dormant 62.5 MMBtu/hr natural gas-fired steam generator to comply with the applicable requirements of District Rule 4320 and to increase the CO emission limit, at Holmes' Heavy Oil Western stationary source near Maricopa, CA within the SW/4 of Section 16, Township 11N, and Range 23W.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Holmes Western Oil Corporation for the modification of an existing non-compliant dormant 62.5 MMBtu/hr natural gas-fired steam generator to comply with the applicable requirements of District Rule 4320 and to increase the CO emission limit, at Holmes' Heavy Oil Western stationary source near Maricopa, CA within the SW/4 of Section 16, Township 11N, and Range 23W.

The analysis of the regulatory basis for this proposed action, Project #S-1121670, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**



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 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (10/16/08)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
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 steam generator is located near Maricopa within the SW/4 of Section 16, Township 11N, Range 23W in HWOC's Kern County Heavy Oil Western Stationary Source. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

### IV. Process Description

The steam generator is used to provide high quality steam for injection in heavy crude oil bearing strata via injection wells. The heat added by the steam reduces the viscosity of the crude oil making it easier to produce. This unit can operate a maximum of 24 hrs/day, 7 days/week, and 52 weeks/year.

### V. Equipment Listing

#### Pre-Project Equipment Description:

S-1626-61-3: NONCOMPLIANT DORMANT 62.5 MMBTU/HR CE NATCO NATURAL GAS-FIRED STEAM GENERATOR WITH ACT GIDEON LOW NOX BURNER, FGR, AND O2 CONTROLLER

#### Proposed Modification:

S-1626-61-4: MODIFICATION OF NONCOMPLIANT DORMANT 62.5 MMBTU/HR CE NATCO NATURAL GAS-FIRED STEAM GENERATOR WITH ACT GIDEON LOW NOX BURNER, FGR, AND O2 CONTROLLER: DESIGNATE AS RULE 4320 FEE PAYING UNIT AND REVISE CO EMISSION LIMIT

Post Project Equipment Description:

S-1626-61-4: 62.5 MMBTU/HR CE NATCO NATURAL GAS-FIRED STEAM GENERATOR WITH ACT GIDEON LOW NOX BURNER, FGR, AND O2 CONTROLLER

**VI. Emission Control Technology Evaluation**

Emissions from natural gas-fired steam generators include NO<sub>x</sub>, CO, VOC, PM<sub>10</sub>, and SO<sub>x</sub>.

NO<sub>x</sub> is the major pollutant of concern when burning natural gas. NO<sub>x</sub> formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO<sub>x</sub>) or due to conversion of chemically bound nitrogen in the fuel (fuel NO<sub>x</sub>). Due to the low fuel nitrogen content of natural gas, nearly all NO<sub>x</sub> emissions are thermal NO<sub>x</sub>. Formation of thermal NO<sub>x</sub> is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

Ultra Low-NO<sub>x</sub> burners reduce NO<sub>x</sub> formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO<sub>x</sub> burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NO<sub>x</sub>. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

Flue gas recirculation (FGR) reduces NO<sub>x</sub> emissions by recirculating a percentage of the exhaust gas back into the windbox. This reduces the oxygen concentration in the air-fuel mixture and regulates the combustion process, lowering the combustion temperature. The lowered availability of oxygen in conjunction with lowered combustion temperature reduces the formation of NO<sub>x</sub>.

**VII. General Calculations**

**A. Assumptions**

- The steam generators operate 24 hours/day, 7 days/week, and 52 weeks/year.
- The steam generator has a maximum heat input rating of 62.5 MMBtu/hr and will be fired on natural gas.
- Natural gas HHV = 1000 Btu/scf and F-factor = 8,578 dscf/MMBtu.

## B. Emission Factors

### Pre-project:

Steam generator ATCs S-1626-61-0 and 62-0 Natural gas-fired emission factors (EF1)			
Pollutant	Lb/MMBtu	ppmv (at 3% O <sub>2</sub> )	Source
NOx	0.011	9	Current Permit (S-1626-61-3)
SOx	0.00285		Current Permit (S-1626-61-3)
PM <sub>10</sub>	0.0076		Current Permit (S-1626-61-3)
CO	0.0259	35	Current Permit (S-1626-61-3)
VOC	0.0055		Current Permit (S-1626-61-3)

### Post-project:

Steam generators S-1626-61-1 and 62-1 Natural gas-fired emission factors (EF2)			
Pollutant	Lb/MMBtu	ppmv (at 3% O <sub>2</sub> )	Source
NOx	0.011	9	Current Permit (S-1626-61-3)
SOx	0.00285		Current Permit (S-1626-61-3)
PM <sub>10</sub>	0.0076		Current Permit (S-1626-61-3)
CO	0.0887	120	Applicant proposed
VOC	0.0055		Current Permit (S-1626-61-3)

## C. Calculations

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

The PE1 is calculated as follows and summarized in the table below:

- PE1 = EF (lb/MMBtu) × Heat Input (MMBtu/day or year)

Pollutant	PE1				
	EF (lb/MMBtu)	Heat Input (MMBtu/day)	Heat Input (MMBtu/year)	Daily PE1 (lb/day)	Annual PE1 (lb/year)
NOx	0.011	1,500	547,500	16.5	6,023
SOx	0.00285	1,500	547,500	4.3	1,560
PM10	0.0076	1,500	547,500	11.4	4,161
CO	0.0259	1,500	547,500	38.9	14,180
VOC	0.0055	1,500	547,500	8.3	3,011

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

The PE2 is calculated as follows and summarized in the table below:

- PE2 = EF (lb/MMBtu) × Heat Input (MMBtu/day or year)

Pollutant	PE2				
	EF (lb/MMBtu)	Heat Input (MMBtu/day)	Heat Input (MMBtu/year)	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NOx	0.011	1,500	547,500	16.5	6,023
SOx	0.00285	1,500	547,500	4.3	1,560
PM10	0.0076	1,500	547,500	11.4	4,161
CO	0.0887	1,500	547,500	133.1	48,563
VOC	0.0055	1,500	547,500	8.3	3,011

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

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

The SSPE1 is calculated in Appendix C and presented in the following table:

SSPE1, (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	12,390	5,984	7,255	29,024	15,705

### 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 HWOC that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	12,390	5,984	7,255	29,024	15,705
S-1626-61-3	6,023	1,560	4,161	14,180	3,011
S-1626-61-4 (NEW)	6,023	1,560	4,161	48,563	3,011
SSPE2	12,390	5,984	7,255	63,407	15,705

### 5. Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. However, for the purposes of determining major source status, the SSPE2 shall not include the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site."



<b>Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	12,390	5,984	7,255	29,024	15,705
SSPE2	12,390	5,984	7,255	63,407	15,705
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

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

## 6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

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

Therefore BE=PE1.

As calculated in Section VII.C.1 above, PE1 is summarized in the following table:

<b>BE (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-1626-61-4	6,023	1,560	4,161	14,180	3,011

## 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 PM<sub>10</sub> (140,000 lb/year), it is not a major source for PM<sub>2.5</sub> (200,000 lb/year).

## 9. Quarterly Net Emissions Change (QNEC)

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

## VIII. Compliance

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

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

##### 1. BACT Applicability

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

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

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

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

As discussed in Section I above, there are no new emissions units associated with this project. Therefore BACT for new units with PE > 2 lb/day purposes is not triggered.

##### 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**

Only CO will be increased as a result of this project. Therefore, the adjusted increase in permitted emissions (lb/day) for CO can be calculated as follows:

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

Where,

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

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

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

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

Where,

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

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

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

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

$$\begin{aligned} \text{AIPE} &= 133.1 - (38.9 * (0.0887/0.0259)) \\ &= 133.1 - (38.9 * 3.4) \\ &= -0.12 \text{ lb/day} \end{aligned}$$

As demonstrated above, the AIPE is not greater than 2.0 lb/day for CO emissions for the steam generator. Therefore BACT is not triggered.

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

As discussed in Section VII.C.7 above, this project does not constitute an SB 288 and/or Federal Major Modification for NO<sub>x</sub> emissions. Therefore BACT is not triggered for any pollutant.

**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:

<b>Offset Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	12,390	5,984	7,255	63,407	15,705
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 SSPE of greater than 20,000 lb/year for any pollutant.

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

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

As demonstrated in VII.C.7, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

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

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project. Therefore public noticing is not required for this project for PE > 100 lb/day.

#### c. Offset Threshold

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

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	12,390	12,390	20,000 lb/year	No
SO <sub>x</sub>	5,984	5,984	54,750 lb/year	No
PM <sub>10</sub>	7,255	7,255	29,200 lb/year	No
CO	29,024	63,407	200,000 lb/year	No
VOC	15,705	15,705	20,000 lb/year	No

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

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

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

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	12,390	12,390	0	20,000 lb/year	No
SO <sub>x</sub>	5,984	5,984	0	20,000 lb/year	No
PM <sub>10</sub>	7,255	7,255	0	20,000 lb/year	No
CO	63,407	29,024	34,383	20,000 lb/year	Yes
VOC	15,705	15,705	0	20,000 lb/year	No

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

**2. Public Notice Action**

As discussed above, public noticing is required for this project for an increase in CO emissions of greater than 20,000 lbs/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the 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.

The following modified condition(s) will enforce the requirements of this rule:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.011 lb-NO<sub>x</sub>/MMBtu, 0.00285 lb-SO<sub>x</sub>/MMBtu, 0.0076 lb-PM<sub>10</sub>/MMBtu, 120 ppmvd CO @ 3% O<sub>2</sub> or 0.0887 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, 4320 and 4801] N

## **E. Compliance Assurance**

### **1. Source Testing**

This unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr.* Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 have been included on the ATC.

### **2. Monitoring**

This unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr.* Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 have been included on the ATC.

### **3. Recordkeeping**

This unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr.* Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 have been included on the ATC.

### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

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

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.

As shown by the AAQA summary sheet (Appendix F) the proposed equipment will not cause a violation of an air quality standard for CO

The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***

Steam Generator '61-4	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X

Proposed Permit Conditions:

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

**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 NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

40 CFR Part 60, Subpart Dc applies to Small Industrial-Commercial-Industrial Steam Generators between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or reconstruction)

This steam generator has a rating of 62.5 MMBtu/hr and is fired on natural gas. Subpart Dc has no standards for gas-fired steam generators. Therefore subpart Dc does not apply.

**Rule 4101 Visible Emissions**

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the steam generators are fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity.

**Rule 4102 Nuisance**

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained. Therefore, compliance with this rule is expected. The following condition will be listed on the permit:

- {98} 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 perform an analysis to determine the possible impact to the nearest resident or worksite.

As demonstrated above, there are no increases in hazardous air pollutants associated with this project, therefore a health risk assessment is not necessary and no further risk analysis is required.

### 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.

F-Factor for NG:	8,578 dscf/MMBtu at 60 °F
PM10 Emission Factor:	0.0076 lb-PM <sub>10</sub> /MMBtu
Percentage of PM as PM10 in Exhaust:	100%
Exhaust Oxygen (O <sub>2</sub> ) Concentration:	3%

$$\text{Excess Air Correction to F Factor} = \frac{20.9}{(20.9 - 3)} = 1.17$$

$$GL = \left( \frac{0.0076 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left( \frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

$$GL = 0.0053 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, compliance with District Rule 4201 requirements is expected and a permit condition will be listed on the permit as follows:

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

### District Rule 4301 Fuel Burning Equipment

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



District Rule 4301 Limits (lb/hr)			
Pollutant	NO <sub>2</sub>	Total PM	SO <sub>2</sub>
S-1626-61-4	0.7	0.5	0.2
<b>Rule Limit (lb/hr)</b>	<b>140</b>	<b>10</b>	<b>200</b>

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, compliance with this rule is expected.

### **District Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2**

These units are natural gas-fired with a maximum heat input greater than 5 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the units are subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*.

In addition, these units are also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*.

Since the emissions limits of District Rule 4306 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4306 requirements will satisfy the requirements of District Rule 4305.

### **District Rule 4306 Boilers, Steam Generators and Process Heaters – Phase 3**

This unit is natural gas-fired with a maximum heat input greater than 5 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, this unit is subject to District Rule 4306.

In addition, this unit is also subject to *District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr*.

This unit is currently in compliance with the applicable provisions of Rule 4306. Source testing, monitoring and recordkeeping requirements of Rule 4320 are equal to or more stringent than the requirements of this rule; therefore, continued compliance is expected.

### **District Rule 4320 Advance Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr**

This rule limits NO<sub>x</sub>, CO, SO<sub>2</sub> and PM<sub>10</sub> emissions from boilers, steam generators and process heaters rated greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NO<sub>x</sub> emitted over the previous year.

This unit is rated at greater than 5 MMBtu/hr heat input. Therefore this rule applies.

#### **Section 5.1 NO<sub>x</sub> Emission Limits**

Section 5.1 states that an operator of a unit(s) subject to this rule shall comply with all applicable requirements of the rule and one of the following, on a unit-by-unit basis:

- 5.1.1 Operate the unit to comply with the emission limits specified in Sections 5.2 and 5.4; or
- 5.1.2 Pay an annual emissions fee to the District as specified in Section 5.3 and comply with the control requirements specified in Section 5.4; or
- 5.1.3 Comply with the applicable Low-use Unit requirements of Section 5.5.

HWOC will pay annual emissions fee to the District and comply with the particulate matter control requirements in Section 5.4 by complying with SO<sub>2</sub> or fuel gas sulfur requirements. See also Section 5.4 discussion below.

The following conditions will added to the ATC to ensure compliance:

- {4194} Pursuant to Rule 4320, beginning in 2010 the operator shall pay an annual emission fee to the District for NO<sub>x</sub> emissions from this unit for the previous calendar year. Payments are due by July 1 of each year. Payments shall continue annually until either the unit is permanently removed from service in the District or the operator demonstrates compliance with the applicable NO<sub>x</sub> emission limit listed in Rule 4320. [District Rule 4320] N
- {4314} Permittee shall maintain records of annual heat input (MMBtu) for this unit on a calendar year basis. Such records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070 and Rule 4320] N

#### **Section 5.4 Particulate Matter Control Requirements**

5.4.1 To limit particulate matter emissions, an operator shall comply with one of the following requirements:

- 5.4.1.1 On and after the applicable NO<sub>x</sub> Compliance Deadline specified in Section 5.2 Table 1, operators shall fire units exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;
- 5.4.1.2 On and after the applicable NO<sub>x</sub> Compliance Deadline specified in Section 5.2 Table 1, operators shall limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet; or
- 5.4.1.3 On and after the applicable NO<sub>x</sub> Compliance Deadline specified in Section 5.2 Table 1, operators shall install and properly operate an emission control system that reduces SO<sub>2</sub> emissions by at least 95% by weight; or limit exhaust SO<sub>2</sub> to less than or equal to 9 ppmv corrected to 3.0% O<sub>2</sub>.
- 5.4.1.4 Notwithstanding the compliance deadlines indicated in Sections 5.4.1.1 through 5.4.1.3, refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

HWOC will address the particulate matter by limiting the fuel sulfur content to 1 gr-S/100 dscf (previously proposed in the Rule 2201 compliance section), which is equivalent to 0.00285 lb-SO<sub>x</sub>/MMBtu as shown:

$$\left( \frac{64 \text{ lb} - \text{SO}_x}{32 \text{ lb} - \text{S}} \right) \frac{1 \text{ gr} - \text{S}}{100 \text{ dscf}} \left( \frac{1 \text{ lb}}{7,000 \text{ gr}} \right) \frac{\text{dscf}}{1,000 \text{ Btu}} \left( \frac{10^6 \text{ Btu}}{\text{MMBtu}} \right) = 0.00285 \frac{\text{lb} - \text{SO}_x}{\text{MMBtu}}$$

Therefore, the following condition will ensure this sulfur limit is met:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NOx @ 3% O2 or 0.011 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 120 ppmvd CO @ 3% O2 or 0.0887 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, 4320, and 4801] N

Compliance with section 5.4 is expected.

### Section 5.7 Monitoring Provisions

Section 5.7.6 requires operators complying with Sections 5.4.1.1 or 5.4.1.2 to provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit to Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2. The following conditions will remain on the permit to enforce the requirements of this rule (they are at least as stringent):

- When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume until compliance with the sulfur limits can be demonstrated for 8 consecutive weeks for a fuel source. [District Rules 1070 and 4320]
- When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6, 6A, 6B, or 6C; or Method 8 or ARB Method 1-100; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084 or a grab sample analysis by double GC for H2S and mercaptans performed in the laboratory and EPA Method 19 to calculate emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months, however annual source testing shall resume if any test fails to show compliance [District Rules 1070 and 4320]

The following condition will be listed on the ATCs to ensure compliance with the reporting section of this requirement:

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c(i)]

### Section 5.8 Compliance Determination

Section 5.8.1 requires that the operator of any unit shall have the option of complying with either the applicable heat input (lb/MMBtu), emission limits or the concentration (ppmv) emission limits specified in Section 5.2. The emission limits selected to demonstrate

compliance shall be specified in the source test proposal pursuant to Rule 1081 (Source Sampling).

Therefore, the following condition will be listed on the ATCs as follows:

- {2976} The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320]

Section 5.8.2 requires that all emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. Therefore, the following permit condition will be listed on the ATCs as follows:

- {2972} All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

Section 5.8.5 requires that for emissions source testing performed pursuant to Section 6.3.1 for the purpose of determining compliance with an applicable standard or numerical limitation of this rule, the arithmetic average of three (3) 30-consecutive-minute test runs shall apply. If two (2) of three (3) runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. Therefore, the following permit condition will be listed on the permit as follows:

- {2980} For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320]

### **Section 6.1 Recordkeeping**

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.5 shall be maintained for five calendar years and shall be made available to the APCO and EPA upon request. Failure to maintain records or information contained in the records that demonstrate noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

A permit condition will be listed on the permit as follows:

- {2983} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306 and 4320]

### **Section 6.2, Test Methods**

Section 6.2 identifies the following test methods as District-approved source testing methods for the pollutants listed:

Pollutant	Units	Test Method Required
NO <sub>x</sub>	ppmv	EPA Method 7E or ARB Method 100
NO <sub>x</sub>	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O <sub>2</sub>	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4
Oxides of sulfur		EPA Method 6C, EPA Method 8, or ARB Method 100
Total Sulfur as Hydrogen Sulfide (H <sub>2</sub> S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99

The following permit conditions will be listed on the permit as follows:

- {4346} NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320]
- {4347} CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320]
- {4348} Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320]

### Section 6.3, Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.1 and 5.2.3 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

The following permit conditions will be listed on the ATCs:

- Source testing to measure natural gas-combustion NO<sub>x</sub> and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source

testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]

- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

#### **Section 6.4 Emission Control Plan (ECP)**

Section 6.4 requires the operator of any unit to submit to APCO for approval an Emissions Control Plan no later than January 1, 2010. HWOC has submitted their ECP for this unit; therefore, HWOC is in compliance with this requirement.

#### **Section 7.0, Compliance Schedule**

Section 7.0 identifies the dates by which the operator shall submit an application for an ATC and the date by which the owner shall demonstrate compliance with this rule.

The unit will be in compliance with the emissions limits listed in Table 1, Section 5.2 of this rule, and periodic monitoring and source testing as required by District Rule 4320. Therefore, requirements of the compliance schedule, as listed in Section 7.0 of District Rule 4320, are satisfied. No further discussion is required.

#### **Conclusion**

Conditions will be incorporated into the permit in order to ensure compliance with each section of this rule, see attached draft ATC in Appendix A. Therefore, compliance with District Rule 4320 requirements is expected.

#### **District Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1**

This rule applies to boilers, steam generators, and process heaters at NO<sub>x</sub> Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. The steam generators are located within the Heavy Oil Western stationary source. The units in this project are located west of I-5; therefore, the provisions of this rule do not apply.

#### **District Rule 4801 Sulfur Compounds**

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: 0.2 % by volume calculated as SO<sub>2</sub>, on a dry basis averaged over 15 consecutive minutes.

Sulfur emissions for this unit are limited by permit condition to 0.00285 lb-SO<sub>x</sub>/MMBtu.

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

With:

N = moles SO<sub>2</sub>

T (Standard Temperature) = 60°F = 520°R

$$P \text{ (Standard Pressure)} = 14.7 \text{ psi}$$

$$R \text{ (Universal Gas Constant)} = \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$$

$$\frac{0.00285 \text{ lb} - \text{SOx}}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 2 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 2 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected and the following modified condition will appear on the permit to enforce these requirements:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NOx @ 3% O2 or 0.011 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 120 ppmvd CO @ 3% O2 or 0.0887 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, 4320, and 4801]

### California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

### California Environmental Quality Act (CEQA)

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

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

The District performed an Engineering Evaluation (this document) for the proposed project and determined that all project specific emission unit(s) are exempt from Best Available Control Technology (BACT) requirements. Furthermore, the District conducted a Risk Management Review and concludes that potential health impacts are less than significant.

Issuance of permits for emissions units not subject to BACT requirements and with health impact less than significant is a matter of ensuring conformity with applicable District rules and regulations and does not require discretionary judgment or deliberation. Thus, the District concludes that this permitting action constitutes a

ministerial approval. Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

**IX. Recommendation**

Compliance with all applicable rules and regulations is expected. Issue ATC S-1626-61-4 subject to the permit conditions on the attached draft ATC in Appendix A.

**X. Billing Information**

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1626-61-4	3020-02-H	62.5 MMBtu/hr	\$1030.00

**Appendices**

- A: Draft ATC
- B: Current PTO
- C: SSPE1 Calculations
- D: Quarterly Net Emissions Change
- E: Emission Profile
- F: Technical Services Memo



**APPENDIX A**  
**Draft ATC**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-1626-61-4

LEGAL OWNER OR OPERATOR: HOLMES WESTERN OIL CORPORATION  
MAILING ADDRESS: HEAVY OIL WESTERN  
PO BOX 1405  
TAFT, CA 93268

LOCATION: HEAVY OIL WESTERN  
CA

SECTION: SW16 TOWNSHIP: 11N RANGE: 23W

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF NONCOMPLIANT DORMANT 62.5 MMBTU/HR CE NATCO NATURAL GAS-FIRED STEAM GENERATOR WITH ACT GIDEON LOW NOX BURNER, FGR, AND O2 CONTROLLER. DESIGNATE AS RULE 4320 FEE PAYING UNIT AND REVISE CO EMISSION LIMIT

**CONDITIONS**

1. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {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]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. Total sulfur content of natural gas fuel shall not exceed 1.0 grain/100 scf. [Districts Rule 2201 and 4320]
6. Emissions from this natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NOx @ 3% O2 or 0.011 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 120 ppmvd CO @ 3% O2 or 0.0887 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]

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-1626-61-4 : Jun 8 2012 1:07PM - DAHLSTRA : Joint inspection NOT Required

7. {4194} Pursuant to Rule 4320, beginning in 2010 the operator shall pay an annual emission fee to the District for NOx emissions from this unit for the previous calendar year. Payments are due by July 1 of each year. Payments shall continue annually until either the unit is permanently removed from service in the District or the operator demonstrates compliance with the applicable NOx emission limit listed in Rule 4320. [District Rule 4320]
8. {4314} Permittee shall maintain records of annual heat input (MMBtu) for this unit on a calendar year basis. Such records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070 and Rule 4320]
9. Copies of all gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted, fuel sources, and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 1070]
10. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO<sub>2</sub>. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rules 2201 and 4320]
11. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume until compliance with the sulfur limits can be demonstrated for 8 consecutive weeks for a fuel source. [District Rules 2201 and 4320]
12. When complying with SO<sub>x</sub> emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6, 6A, 6B, or 6C; or Method 8 or ARB Method 1-100; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084 or a grab sample analysis by double GC for H<sub>2</sub>S and mercaptans performed in the laboratory and EPA Method 19 to calculate emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months, however annual source testing shall resume if any test fails to show compliance. [District Rules 2201 and 4320]
13. If the unit is fired on noncertified gaseous fuel and compliance with SO<sub>x</sub> emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by double GC for H<sub>2</sub>S and mercaptans performed in the laboratory. [District Rules 2201 and 4320]
14. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306 and 4320]
15. Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306 and 4320]
16. Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306 and 4320]
17. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320]
18. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

19. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, NO<sub>x</sub> (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O<sub>2</sub>), and EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320]
20. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320]
21. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
22. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306 and 4320]

DRAFT

**APPENDIX B**  
**Current PTO**

# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1626-61-3

EXPIRATION DATE: 06/30/2016

SECTION: SW16 TOWNSHIP: 11N RANGE: 23W

## EQUIPMENT DESCRIPTION:

NONCOMPLIANT DORMANT 62.5 MMBTU/HR CE NATCO NATURAL GAS-FIRED STEAM GENERATOR WITH ACT GIDEON LOW NOX BURNER, FGR, AND O2 CONTROLLER

## PERMIT UNIT REQUIREMENTS

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1. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 4320]
2. The fuel supply line shall be physically disconnected from this unit. [District Rule 4320]
3. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4320 and all other applicable District regulations). [District Rule 4320]
4. When designated as a dormant emissions unit, the permittee shall not be required to perform source testing or monitoring requirements otherwise required by this permit. [District Rule 4320]
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. 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]
8. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. Total sulfur content of natural gas fuel shall not exceed 1.0 grain/100 scf. [Districts Rule 2201 and 4320]
10. Emissions from this natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.011 lb-NO<sub>x</sub>/MMBtu, 0.00285 lb-SO<sub>x</sub>/MMBtu, 0.0076 lb-PM<sub>10</sub>/MMBtu, 35 ppmvd CO @ 3% O<sub>2</sub> or 0.0259 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
11. Copies of all gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted, fuel sources, and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 1070]
12. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO<sub>2</sub>. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 4301]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

13. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume until compliance with the sulfur limits can be demonstrated for 8 consecutive weeks for a fuel source. [District Rule 1070]
14. When complying with SO<sub>x</sub> emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6, 6A, 6B, or 6C; or Method 8 or ARB Method 1-100; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084 or a grab sample analysis by double GC for H<sub>2</sub>S and mercaptans performed in the laboratory and EPA Method 19 to calculate emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months, however annual source testing shall resume if any test fails to show compliance. [District Rule 1070]
15. If the unit is fired on noncertified gaseous fuel and compliance with SO<sub>x</sub> emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by double GC for H<sub>2</sub>S and mercaptans performed in the laboratory. [District Rule 1070]
16. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306 and 4320]
17. If either the NO<sub>x</sub> or CO concentrations corrected to 3% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320]
18. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306 and 4320]
19. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent by volume and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320]
20. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306 and 4320]
21. Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306 and 4320]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

22. Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306 and 4320]
23. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320]
24. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
25. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, NO<sub>x</sub> (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O<sub>2</sub>), and EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320]
26. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320]
27. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
28. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306 and 4320]

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



**APPENDIX C**  
**SSPE1 Calculations**

## Detailed SSPE Report

Region	Facility	Unit	Mod	NOx	SOx	PM10	CO	VOC	Number of Outstanding ATCs
S	1626	0	0						0
S	1626	3	6	220	6	16	184	122	1
S	1626	4	5					26	0
S	1626	6	5					26	0
S	1626	7	5					26	0
S	1626	9	5					15	0
S	1626	10	5					22	0
S	1626	14	2					2082	0
S	1626	15	2					2082	0
S	1626	16	2					2082	0
S	1626	21	5					110	0
S	1626	22	5					37	0
S	1626	28	2	220	6	16	184	122	0
S	1626	29	1					37	0
S	1626	30	1					73	0
S	1626	31	4					37	0
S	1626	32	1					37	0
S	1626	39	5					110	3
S	1626	40	4					110	0
S	1626	41	4					73	0
S	1626	42	4					37	0
S	1626	43	4					146	0
S	1626	49	4	220	6	16	184	122	2
S	1626	51	3					402	0
S	1626	52	3					402	0
S	1626	53	3					402	0

Monday, May 28, 2012

Page 1 of 2

**Notes:**

Blank values for a particular permit unit do not necessarily reflect zero emissions. For units with blank values, the PE must still be determined based on physical PE or as limited by permit condition.

For permits that show outstanding ATCs, consult PAS ATC Emission Profile records to determine what the highest PE is for each pollutant.

ATCs for new units (e.g. S-XXXX-X-0) must be added in separately.

ERC's for onsite reductions must be added in separately per Rule 2201 as well.

<i>Region Facility</i>	<i>Unit</i>	<i>Mod</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>CO</i>	<i>VOC</i>	<i>Number of Outstanding ATCs</i>	
S	1626	54	4				110	0	
S	1626	55	3				37	0	
S	1626	56	3				37	0	
S	1626	57	1				37	0	
S	1626	58	1				37	0	
S	1626	59	1	0	0	0	148	0	
S	1626	60	3	2838	449	1198	5676	473	1
S	1626	61	3	6023	1560	4161	14180	3011	2
S	1626	63	5	2650	3951	1831	8432	723	1
S	1626	64	2	0	0	0	2245	5	
S	1626	70	0	219	6	17	184	107	0
<i>SSPE (lbs)</i>			12390	5984	7255	29024	15705		

Monday, May 28, 2012

Page 2 of 2

*Notes:*

*Blank values for a particular permit unit do not necessarily reflect zero emissions. For units with blank values, the PE must still be determined based on physical PE or as limited by permit condition.*

*For permits that show outstanding ATCs, consult PAS ATC Emission Profile records to determine what the highest PE is for each pollutant.*

*ATCs for new units (e.g. S-XXXX-X-0) must be added in separately.*

*ERC's for onsite reductions must be added in separately per Rule 2201 as well.*

**APPENDIX D**  
**Quarterly Net Emission Change**

### Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

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

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

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	1,506	1,506	0
SO <sub>x</sub>	390	390	0
PM <sub>10</sub>	1,040	1,040	0
CO	12,141	3,545	8,596
VOC	753	753	0

**APPENDIX E**  
**Emission Profile**

Permit #: S-1626-61-4	Last Updated
Facility: HOLMES WESTERN OIL	06/08/2012 DAHLSTRA

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	6023.0	1560.0	4161.0	48563.0	3011.0
Daily Emis. Limit (lb/Day)	16.5	4.3	11.4	133.1	8.3
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	8596.0	0.0
Q2:	0.0	0.0	0.0	8596.0	0.0
Q3:	0.0	0.0	0.0	8596.0	0.0
Q4:	0.0	0.0	0.0	8596.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

**APPENDIX F**  
**Technical Services Memo**



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

To: Ashley Dahlstrom, AQE – Permit Services  
 From: Trevor Joy, AQS – Technical Services  
 Date: June 4, 2012  
 Facility Name: Holmes Western Oil  
 Location: Township 11N, Range 23W  
 Application #(s): S-1626-61-4  
 Project #: 1121670

### A. RMR SUMMARY

RMR Summary			
Categories	Natural Gas Steam Generator – <u>AAQA for CO ONLY</u> (Unit 61-4)	Project Totals	Facility Totals
Prioritization Score	N/A	N/A	N/A
Acute Hazard Index	N/A	N/A	N/A
Chronic Hazard Index	N/A	N/A	N/A
Maximum Individual Cancer Risk ( $10^{-6}$ )	N/A	N/A	N/A
T-BACT Required?	No		
Special Permit Conditions?	Yes		

### Proposed Permit Conditions

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

#### Unit # 61-4

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

### I. Project Description

Technical Services received a request on May 31, 2012 to perform only an Ambient Air Quality Analysis for CO emissions from a natural gas steam generator (no RMR is required as there isn't an increase in fuel usage and the emission parameters will not change).

### II. Analysis

Technical Services performed modeling for the criteria pollutant CO. The generator's emission rate used for criteria pollutant modeling was: CO: 5.5 lb/hr. The emission rate was calculated and supplied by the processing engineer.

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results

NG Steam Generator	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X

### III. Conclusion

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

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.