San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAR 2 8 2012

Mr. Dennis Champion
Occidental of Elk Hills Inc
10800 Stockdale Hwy
Bakersfield, CA 93311

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-2234
Project # 1114442

Dear Mr. Champion:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes the installation of a new amine gas treating unit within the existing gas plant stationary source near Tupman, CA.

After addressing any EPA comments made during the 45-day comment period, the Authorities to Construct will be issued to the facility with Certificates of Conformity. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: RE/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAR 2 8 2012

Gerardo C. Rios, Chief
Permits Office
Air Division
U.S. EPA - Region IX
75 Hawthorne St.
San Francisco, CA 94105

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-2234
Project # S-1114442

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for Occidental of Elk Hills Inc within the gas plant stationary source, which has been issued a Title V permit. Occidental of Elk Hills Inc is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The project authorizes the installation of a new amine gas treating unit within the existing gas plant stationary source near Tupman, CA.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # S-2234-245-0 through '-249-0 with Certificates of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: RE/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAR 2 8 2012

Mike Tollstrup, Chief
Project Assessment Branch
Air Resources Board
P O Box 2815
Sacramento, CA 95812-2815

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-2234
Project # 1114442

Dear Mr. Tollstrup:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes the installation of a new amine gas treating unit within the existing gas plant stationary source near Tupman, CA.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # S-2234-245-0 through '-249-0 with Certificates of Conformity. After demonstrating compliance with the Authorities to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 30-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: RE/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

Bakersfield Californian

NOTICE OF PRELIMINARY DECISION
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND
THE PROPOSED SIGNIFICANT MODIFICATION OF FEDERALLY
MANDATED OPERATING PERMIT

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of Occidental of Elk Hills Inc for its amine gas treating unit within the gas plant stationary source, California. The project authorizes the installation of a new amine gas treating unit within the existing gas plant stationary source near Tupman, CA.

The District's analysis of the legal and factual basis for this proposed action, project #1114442, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. There are no emission increases associated with this proposed action. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Amine Gas Treating Unit

Facility Name:	Occidental of Elk Hills Inc (OEHI)	Date:	March 8, 2012
Mailing Address:	10800 Stockdale Hwy	Engineer:	Richard Edgehill
	Bakersfield, CA 93311	Lead Engineer:	Richard Karrs
Contact Person:	Dennis Champion (OEHI)and Mike Kelly (Vector Environmental)		
Telephone:	(661) 412-5214 (DC), (661) 323-1477 #205 (MK)		
Fax:	(661) 412-5270		
E-Mail:	Dennis_Champion@oxy.com		
Application #(s):	S-2234-245-0 through '-249-0		
Project #:	1114442		
Deemed Complete:	December 15, 2011		

I. Proposal

Occidental of Elk Hills Inc (OEHI) has requested Authorities to Construct (ATCs) for the installation of a new amine gas treating unit (GTU) at the 14Z facility within the existing gas plant stationary source S-2234. The new equipment will consist of a amine treating system, glycol dehydration unit, 68 MMBtu/hr natural gas-fired process heater, one 2000 gallon tank with vapor recovery system (closed drain system), and one 2000 gallon uncontrolled tank (open drain system).

Emissions from the new GTU will consist of combustion emissions (NOx, SOx, PM10, CO, and VOCs) from the heater, fugitive VOC emissions from the tank vapor control system and glycol dehydration unit, and uncontrolled tank VOC emissions.

The project is a Federal Major Modification. BACT, offsets and public notice are required.

OEHI received their Title V Permit on April 30, 1999. The project is a Federal Major Modification and therefore it is classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. OEHI must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

II. Applicable Rules

Rule 2020	Exemptions (12/20/07)
Rule 2201	New and Modified Stationary Source Review Rule (04/21/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99) –

40 CFR Part 60, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 – **exempt-** open and closed drain tanks are less than 19,813 gallons (472 bbls) in capacity

Subpart KKK—Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants- **not applicable** - emissions units do not extract natural gas liquids such as propane, butane, and isobutane

Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)) – **exempt** – facility is not a major HAPs source
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 (3/17/05)
Rule 4320	Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4408	Glycol Dehydration Systems (12/19/02)
Rule 4409	Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities (4/30/05)
Rule 4623	Storage of Organic Liquids (5/19/05)
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 GTU will be located at the 35R Gas Processing Stationary Source SE Section 14, T30S, R23E (14Z facility). The facility will not be located near residential areas, sensitive receptors or within 1000 feet of any school. Project location maps are included in **Attachment I**.

IV. Process Description

The GTU will consist of an amine system, glycol dehydration unit, process heater, and controlled and uncontrolled drain tanks. The amine system will receive wet field gas with approximately 2.5% CO2 which will be used to reduced to approximately 0.5%. Waste gas from the amine system will enter a new electrically heated glycol dehydration unit for removal of water (dehydration). Off-gas from the dehydration unit will be injected into the production strata using electrically driven compressors. The treated gas will ultimately be sent to the 35R Gas Processing Complex.

Heat required for amine regeneration will be provided by a hot oil system heated by a 68 MMBtu/hr natural gas-fired process heater equipped with an ultra-low NOx burner capable of achieving NOx emissions of 7 ppmv @ 3% O2.

One controlled 2000 gallon tank will also be installed to store miscellaneous process fluids such as those from compressor intake scrubbers. One uncontrolled 2000 gallon tank will be installed to store wash water, runoff, and miscellaneous fluid containing small amounts of hydrocarbons.

A process flow diagram of the amine treatment unit is included in **Attachment II**.

V. Equipment Listing

S-2234-245-0: AMINE TREATING SYSTEM WITH AMINE CONTACTOR; AMINE REGENERATION SYSTEM WITH RE-BOILER HEATED BY HOT OIL SYSTEM; WITH FLASH VESSEL AND AMINE REGENERATION OVERHEAD VAPORS ROUTED TO PROCESS SYSTEM INCLUDING OTHER MISCELLANEOUS EQUIPMENT SUCH AS FILTERS, HEAT EXCHANGERS, PUMPS AND VESSELS

S-2234-246-0: ELECTRICALLY HEATED GLYCOL DEHYDRATION UNIT WITH VAPORS FROM FLASH VESSEL AND STILL VENT ROUTED TO PROCESS SYSTEM INCLUDING OTHER MISCELLANEOUS EQUIPMENT SUCH AS FILTERS, HEAT EXCHANGERS, PUMPS AND VESSELS

S-2234-247-0: 68 MMBTU/HR VERTICALLY ORIENTED PROCESS HEATER (HOT OIL HEATER) EQUIPPED WITH COEN RMB ULTRA LOW NOX BURNER (OR EQUIVALENT)

S-2234-248-0: 2000 GALLON HORIZONTAL DRAIN TANK SERVED BY VAPOR RECOVERY SYSTEM WITH VAPORS RETURNED TO A PROCESS STREAM OR TO A GAS GATHERING SYSTEM

S-2234-249-0: 2000 GALLON HORIZONTAL DRAIN TANK EQUIPPED WITH A PRESSURE/VACUUM DEVICE TO BE USED BY AN OPEN DRAIN SYSTEM

As per District policy 1035 Flexibility in Equipment Descriptions in ATCs, some flexibility in the final specifications of the equipment will be allowed stated in the following ATC conditions for the Hot Oil Heater (S-2234-247).

The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] N

The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010] N

Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] N

No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] N

VI. Emission Control Technology Evaluation

S-2234-245 Amine Treating Plant

The amine treating system is fully enclosed. Emissions from flash vessels and regeneration system equipment will be compressed using an existing gas compressor and injected into subsurface strata.

S-2234-246 Glycol Dehydration Unit

The glycol dehydration unit is electrically-driven with no process vents (closed system). No emissions are expected.

S-2234-247 Hot Oil Heater
Emissions from the natural gas-fired hot oil heater include NO_X, CO, VOC, PM_{10}, and SO_X.

NO_X is the major pollutant of concern when burning natural gas. NO_X formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_X) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_X). Due to the low fuel nitrogen content of natural gas, nearly all NO_X emissions are thermal NO_X. Formation of thermal NO_X 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_X burners reduce NO_X 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_X 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_X. 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.

Units S-2234-247 is designed to achieve 7 ppmv- NOx @3% and 50 ppmv-CO @3% O2 and will combust natural gas with a sulfur content not exceeding 1.0 gr S/100scf.

Manufacturer's information on the ultra-low NOx burner is included in **Attachment III**.

Controlled Drain Tank S-2234-248

The tank will be served by a vapor control system with a control efficiency of at least 95% as required by Rule 4623.Vapors will be returned to the process stream or to a gas gathering system (gas pipeline).

Uncontrolled Drain Tank S-2234-249

This tank will be equipped with a P/V valve.

Fugitive Emissions (all ATCs)
Leaks from fugitive emissions components will be controlled by implementation of an I&M program consistent with the requirements of Rule 4409 and NSPS Subpart KKK. Because emissions are calculated using EPA Average Leak Rate equations with a leak threshold of 2000 ppmv (please refer to emissions factor below), leaks exceeding 2000 ppmv are a violation of the permit as stated in the following condition:

A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 2,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rule 2201] Y

VII. General Calculations

A. Assumptions

- Facility operates 24 hr/day 365 days per year.
- The VOC content of fugitive emissions is 100% by weight.
- Natural gas heating value: 1000 Btu/scf
- F factor, 8578 dscf @ 0% O_2 (60 deg F)/MMBtu
- Sulfur content of natural gas: 1.0 gr S/scf

B. Emission Factors

Fugitive Emissions
Fugitive VOC emissions have been quantified for Average Leak Rate (ALR) equations with a leak threshold (other equipment) in EPA, "Protocol for Estimating Leak Emissions" (EPA – 453/R-95-017, November 1995) Table 5-7, "Equation Relating Average Leak Rate to Fraction Leaking at Oil and Gas Production Operation Units" (**Attachment IV**). The leak threshold is 2000 ppm for all emissions units except the closed and open drain tanks S-2234-248 and '-249 which have a leak threshold of 10,000 ppmv. In calculating the DEL associated with fugitive emissions, the "LKFRAC" term in these equations, representing the number of allowable leaks, was assumed to be zero.

Hot Oil Heater S-2234-247-0

Pollutant	Emission Factors		Source
NO_X	0.0085 lb-NO_X/MMBtu	7 ppmvd NO_X (@ 3%O_2)	Burner Manufacturer
SO_X	0.00285 lb-SO_x/MMBtu		District Standard for Natural Gas
PM_{10}	0.0076 lb-PM_{10}/MMBtu	7.6 lb/10^6 scf	AP-42 Table 1.4-2
CO	0.0369 lb-CO/MMBtu	50 ppmv CO (@ 3%O2)	Burner Manufacturer
VOC	0.0054 lb-VOC/MMBtu	13 ppmv @3% O2	AP-42 Table 1.4-2

S-2234-249 Drain Tank (Uncontrolled)
Uncontrolled tank VOC emissions were calculated using the EPA Tanks 4.0. Input data are listed below and in **Attachment V**.

tank configuration, horizontal
dimensions, 12 ft long, 5.3 ft diameter
volume, 2000 gallons
RVP, 1.5 psia
throughput, 52 turnovers/yr (104,000 gallons/yr)
temperature, ambient
vapor molecular weight, 50 lb/lbmol
liquid molecular weight, 207 lb/lbmol

Greenhouse Gas (GHG) Emissions

GHG consist of CO2 and methane.

The fractions of VOC emissions consisting of CO2 and CH4 for each process stream have been calculated by applicant from the stream composition and are listed in bold type in the table below.

Fugitive VOC emissions calculated using the ALR equations are assumed to be TOG (total organic gases) for the purposes of estimating GHG emissions.

14Z Amine Treating System

Stream Flow Rate (Lb /Hour)

Component	MW Lb/Mole	Gas to Absorber	Sweet Gas To Dehydration	Gas to Injection Compressor		
				Flash Gas	Acid Gas	Total Gas
N2	28.020	1,525.383	1,523.420	1.880	0.090	1.970
CO2	44.010	10,980.000	2.920	3.500	10,973.580	10,977.080
C1	16.042	134,879.500	134,531.700	318.520	29.330	347.850
C2	30.026	19,231.650	19,183.780	43.960	3.910	47.870
C3	44.038	11,307.310	11,283.960	21.740	1.610	23.350
iC4	58.050	2,992.329	2,991.780	0.530	0.003	0.533
nC4	58.050	5,063.941	5,063.040	0.890	0.010	0.900
iC5	72.062	2,285.824	2,285.250	0.570	0.010	0.580
nC5	72.062	2,000.096	1,999.590	0.502	0.010	0.512
C6+	86.074	6,569.580	6,565.920	3.690	0.720	4.410
H2O	18.002	338.931	381.350	13.570	11.875	25.445
Total (Lb/Hr)		197,174.544	185,812.710	409.352	11,021.148	11,430.500
TOG Wt. Fraction Gas		0.9349	0.9897	0.9537	0.0032	0.0373
VOC Wt. Fraction Gas		0.1533	0.1625	0.0682	0.0002	0.0026
CH4 Wt. Fraction TOG		**0.7317**	0.7315	0.8159	0.8238	**0.8165**
VOC Wt. Fraction TOG		0.1639	0.1642	0.0715	0.0664	0.0711
RATIO Lb CO2 / Lb TOG		**0.0596**	0.0000	0.0090	308.2207	**25.7675**

Note: Gas to absorber is based on design specifications. Other streams mass flow rates are estimaed using the API Model Amine Calc Version 1.0

	lb CO2/lb TOG	wt fraction CH4
Amine Sweetening Unit (Inlet and Contactor)	0.0596	0.7317
Amine Regeneration Unit and Glycol Dehydration Unit	25.7675	0.8165
Closed and Open Drain Tanks	0	0.6*

*CARB Instuctional Guidane for Mandatory GI-1G Emissions Reporting 2008, Chapter 10 Petroleum Refineries, p 10-17 "A conversion factor of 0.6 is used to convert from nonmethane hydrocarbons to methane."

Document included in District project S2010, 1101684

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since these are new emissions units, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

Fugitive Emissions

Permit unit	VOC PE2 (lb/day)	VOC PE2 (lb/yr)	CH4 (lb/yr)	CO2 lb/yr)
Amine Sweetening Unit (Inlet and Contactor)	0.530	194	142	12
Amine Regeneration Unit	0.494	180	147	4638
S-2234-245 Total	**1.024 ~ 1.0**	**374**	**289**	**4650**
Glycol Inlet and Contactor	0.261	95		
Glycol Regeneration Unit	0.372	136		
S-2234-246 Total	**0.633 ~ 0.6**	**231**	**189**	**5,952**
Closed Drain Tank (tank to vapor control system trunk line)	0.1005	65		
tank	0.1791	37		
S-2234-248 Total	**0.280 ~ 0.3**	**102**	**61**	**0**
S-2234-249 (uncontrolled tank)	**0.179 ~ 0.2**	**65**	**39**	**0**
Total Fugitives	**2.1**	**772**	**578**	**10,602**

Please note that the DELs for permit units '-245 and '-246 include emissions units with emissions less than 0.5 lb/day which round to zero for BACT and offsets purposes by Districtt policy APR 1130.

Hot Oil Heater S-2234-247

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_X	0.009	68	24	13.9
SO_X	0.00269	68	24	4.4
PM_{10}	0.0076	68	24	12.4
CO	0.037	68	24	60.2
VOC	0.0054	68	24	8.8

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_X	0.009	68	8,760	5,063
SO_X	0.00269	68	8,760	1,602
PM_{10}	0.0076	68	8,760	4,527
CO	0.037	68	8,760	21,981
VOC	0.0054	68	8,760	3,217

Open Drain Tank S-2234-249 – Tanks 4.0 in **Attachment V**
66.9 lb/yr/365 = 0.2 lb VOC/day

Daily PE2

	NOx	SOx	PM10	CO	VOC
S-2234-245	0	0	0	0	1.2
S-2234-246	0	0	0	0	0.6
S-2234-247	13.9	4.4	12.4	60.2	8.8
S-2234-248	0	0	0	0	0.3
S-2234-249	0	0	0	0	0.2 + 0.2 (fugitives) = 0.4
Total	0	0	0	0	0.4

Annual PE2

	NOx	SOx	PM10	CO	VOC
S-2234-245	0	0	0	0	374
S-2234-246	0	0	0	0	231
S-2234-247	5,063	1,602	4,527	21,981	3,217
S-2234-248	0	0	0	0	102
S-2234-249	0	0	0	0	67 + 65 (fugitives) = 132
Total	5,063	1,602	4,527	21,981	4056

Emissions Profiles are included in **Attachment VI.**

GHG emissions

Fugitive Emissions (from above table)

578 lb CH_4/yr x 21 lb-CO2e per lb-CH4 = 12,138 lb-CO2e/yr
10,602 lb CO_2/yr x 1 lb-CO2e per lb-CO2 = 10,602 lb-CO2e/yr
Total = 22,740 lb-CO2e/yr

÷ 2,000 lb/ton x 0.9072 metric tons/short ton = 10.3 mtons-CO2e/yr

S-2234-247 (process heater)

CO2 53.06 kg/MMBtu (HHV) natural gas (116.7 lb/MMBtu)
CH4 0.005 kg/MMBtu (HHV) natural gas (0.011 lb/MMBtu)
N2O 0.0001 kg/MMBtu (HHV) natural gas (0.00022 lb/MMBtu)

GWP for CH4 = 21 lb-CO_2e per lb-CH4
GWP for N2O = 310 lb-CO_2e per lb-N2O

Calculations

Hourly Emissions

CO2 Emissions = 68.0 Btu/hr x 116.7 lb/Btu = 7936 lb-CO_2e/hour
CH4 Emissions = 68.0 Btu/hr x 0.011 lb/Btu x 21 lb-CO_2e per lb-CH4 = 15.7 lb-CO_2e/hour
N2O Emissions = 68.0 Btu/hr x 0.00022 lb/Btu x 296 lb-CO_2e per lb-N2O = 4.4 lb-CO_2e/hour

Total = 7936 + 15.7 + 4.4 = 7956 lb-CO_2e/hour

Annual Emissions

7956 lb-CO_2e/hour x 8,760 hr/year ÷ 2,000 lb/ton = 34,848 tons-CO_2e/year

Metric Conversion

34,848 short tons-CO_2e/year x 0.9072 metric tons/short ton = **31,614 metric tons**

S-2234-249 open drain tank

[67 lb VOC/yr (tank) + 65 lb VOC/yr (fugitives)] x 0.6 lb CH_4/lb VOC x 21 lb-CO2e per lb-CH4 = 1663 lb-CO2e/yr

÷ 2,000 lb/ton x 0.9072 metric tons/short ton = 0.8 mtons-CO2e/yr

Total GHG emissions = 10.8 + 31,614 + 0.8 = 31,626 mtons-CO2e/yr

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Facility emissions are already above the Offset and Major Source Thresholds for NOx, SOx, PM10, CO, and VOC emissions; therefore, SSPE1 calculations are not necessary.

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Facility emissions are already above the Offset and Major Source Thresholds for NOx, SOx, PM10, CO, and VOC emissions; therefore, SSPE2 calculations are not necessary.

5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 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."

This source is an existing Major Source for NOx, SOx, PM10, CO, and VOC emissions and will remain a Major Source for these air contaminants.

6. Baseline Emissions (BE)

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

Pursuant to Section 3.7 of District Rule 2201, BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201.

Since these are new emissions units, BE = 0 for all pollutants.

7. SB 288 Major Modification

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

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NOx, SOx, PM10, CO, and VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions unit(s) within this project do not have a total potential to emit which is greater than Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	SB 288 Major Modification?
NO_x	5,063	50,000	No
SO_x	1,602	80,000	No
PM_{10}	4,527	30,000	No
VOC	4,056	50,000	No

8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission increases are counted. Emission decreases may not cancel out the increases for this determination.

The project's combined total emission increases are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO_x*	5,063	0	Yes
VOC*	4,056	0	Yes
PM_{10}	4,527	30,000	No
$PM_{2.5}$	<4,527	20,000	No
SO_x	1,602	80,000	No

Since there is an increase in NOx and VOC emissions, this project constitutes a Federal Major Modification for NOx and VOC emissions. The project does not constitute a Federal Major Modification for PM10 and SOx.

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. For all units in the project the QNEC is PE2 divided by 4.

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*:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,
b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or

d. Any new or modified emissions unit, in a stationary source project, which results in a SB 288 or Federal Major Modification.

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

No relocations or modifications are proposed (items b and c above). As discussed in Section VII.C.8 above, this project constitutes a Federal Major Modification; BACT is required for all new emissions units with an increase exceeding 0.5 lb/day in the project pursuant to District Rule 2201 Section 4.1.3. However, none of the emissions units except S-2234-247 have an emissions increase of > 0.5 lb/day. As discussed above, the emissions units within '-245 and '-246 have emissions < 0.5 lb/day. Therefore, BACT is required only for S-2234-247

2. BACT Guideline

The requirements for SOx, PM10, and VOC are based on BACT Guideline 1.2.1 which has been rescinded as the requirements for NOx in BACT Guideline 1.2.1 are less stringent than Rule 4320. BACT Guideline 1.2.1 is included in **Attachment VII**.

3. Top-Down BACT Analysis

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

BACT Analyses are included in **Attachment VIII**.

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Post Project SSPE (SSPE2)	>20,000	>54,750	>29,200	>200,000	>20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_X SOx, PM10, CO, and VOC; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for NO_X is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,
PE2 = Post Project Potential to Emit, (lb/year)
BE = Baseline Emissions, (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE)

The facility is proposing to install new emissions units; therefore Baseline Emissions are equal to zero. Also, there are no increases in cargo carrier emissions. Offsets can be determined as follows:

Offsets Required (lb/year) = PE2 x DOR

Non Combustion Units

Offsets Required (lb/year)

Permit unit	PE2 (lb/day)*	PE2 (lb/yr)
S-2234-245	~1.0	374
S-2234-246	~0.6	231
S-2234-248	0	0
S-2234-249	0	0
Total		605

*District policy APR 1130 states that IPEs less than or equal to 0.5 lb/day to be set to zero for purposes of providing emission offsets. This change allows an IPE that rounds to 0.5 lb/day, e.g. less than 0.54 lb/day, to be set to zero for purposes of providing emission offsets.

S-2234-247 (process heater)
NOx: 5,063 lb/yr
SOx: 1,602 lb/yr
PM10: 4,527 lb/yr
CO: 21,981 lb/yr
VOC: 3,217 lb/yr

NOx:

PE2 = 5063 lb NOx/yr

The DOR = 1.5 (Federal Major Modification), the amount of NOx ERCs that need to be withdrawn is:

Offsets Required (lb/year) = 5063 x 1.5
= 7595 lb-NOX/year

The quarterly ERC required is as follows:

DOR = 1.5

Pollutant	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
NOx	1,899	1,899	1,899	1,899

The applicant has stated that the facility plans to use ERC certificate S-3514-2 to offset the increases in NOx emissions associated with this project. The ERCs have been reserved as indicated in the table below.

Reserved in PAS

ERC #*	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
S-3414-2	1899	1899	1899	1899

SOx:

PE2 = 1602 lb/yr

The applicant has stated that the facility plans to use ERC S-3508-5 to offset the increases in SOx emissions associated with this project. The site of the reductions is NW 27, T31S, R22E which is within 15 miles of SE Section 14, T30 S, R23 E. Therefore the DOR is 1.3 to 1.0.

With DOR = 1.3, the amount of SOx ERCs that need to be withdrawn is:

Offsets Required (lb/year) = 1602 x 1.3
= 2083 lb-SOX/year

The quarterly ERC required is as follows:

DOR = 1.3

Pollutant	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
SOx	521	521	521	521

The ERCs have been reserved as indicated in the table below.

Reserved in PAS

ERC #	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
S-3508-5	521	521	521	521

PM10:

PE2 = 4527 lb/yr

The applicant has stated that the facility plans to use ERC S-3508-5 to offset the increases in PM10 emissions associated with this project. The site of the reductions is NW 27, T31S, R22E which is within 15 miles of SE Section 14, T30 S, R23 E. Additionally, PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 (District policy APR 1430). Therefore the DOR is 1.3 to 1.0.

With DOR = 1.3, the amount of PM10 ERCs that need to be withdrawn is:

Offsets Required (lb/year) = 4527 x 1.3
= 5885 lb-NOX/year

The quarterly ERC required is as follows:

DOR = 1.3

Pollutant	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
PM10	1471	1471	1471	1471

The ERCs have been reserved as indicated in the table below.

Reserved in PAS

ERC #*	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
S-3508-5 (S-3413-5)	1471	1471	1471	1471

As seen above, the facility has proposed sufficient credits to fully offset the quarterly emission increases associated with this project.

CO:

Section 4.6.1 of Rule 2201 states that emissions offsets are not required for increases in carbon monoxide in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards. The District performed an Ambient Air Quality Analysis (discussed later) and determined that this project will not result in or

contribute to a violation of an Ambient Air Quality Standard for CO (see **Attachment IX**). Therefore, CO offsets are not required for this project.

VOC:

3217 (combustion) + 605 (fugitives) = 3822 lb VOC/yr
Assuming DOR = 1.5 (Federal Major Modification), the amount of VOC ERCs that need to be withdrawn is:

'-245
Offsets Required (lb/year) = 374 x 1.5
= 561(140/qtr)

'-246
Offsets Required (lb/year) = 231 x 1.5
= 347 (87/qtr)

'-247
Offsets Required (lb/year) = 3217 x 1.5
= 4825 (1206/qtr)

Calculating the appropriate quarterly emissions to be offset is as follows:

DOR = 1.5 (3822/4 x 1.5 = 1433)

Pollutant	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
VOC	1433	1433	1433	1433

The applicant has stated that the facility plans to use ERC S-3615-1 to offset the increases in VOC emissions associated with this project.

The ERCs have been reserved as indicated in the table below.

Reserved in PAS

ERC #*	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
S-3615-1	1433	1433	1433	1433

As seen above, the facility has sufficient credits to fully offset the quarterly NO_X, SO_X, PM_{10} and VOC emissions increases associated with this project.

Proposed Rule 2201 (offset) Conditions:

S-2234-245-0

Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: VOC: 140 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Y

ERC Certificate Numbers S-3615-1 (or certificates split from theses certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Y

S-2234-246-0

Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: VOC: 87 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Y

ERC Certificate Numbers S-3615-1 (or certificates split from theses certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Y

S-2234-247-0

Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1899 lb/quarter; SOx: 521 lb/quarter; PM10: 1471 lb/quarter, and VOC: 1206 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 . [District Rule 2201] Y

ERC Certificate Numbers S-3514-2, S-3508-5, and S-3615-1 (or certificates split from theses certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Y

C. Public Notification

1. Applicability

Public noticing is required for:

a. Any new Major Source, which is a new facility that is also a Major Source,
b. SB 288/ Federal Major Modifications,
c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
d. Any project which results in the offset thresholds being surpassed, and/or
e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

As demonstrated in VII.C.8, this project constitutes a Federal Major Modification. Therefore public noticing is required.

2. Public Notice Action

As discussed above, this project is a Federal Major Modification and therefore public noticing is required. 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)

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

Proposed Rule 2201 (DEL) Conditions:

S-2234-245, '-246, '-248, and '-249 (Fugitive Emissions only)

Permittee shall maintain with the permit accurate fugitive component counts and resulting emissions calculated using (ALR) equations for a 2,000 ppmv leak threshold included in EPA, "Protocol for Estimating Leak Emissions" (EPA - 453/R-95-017, November 1995). [District Rule 2201] Y

A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 2,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rule 2201] Y

VOC fugitive emissions shall not exceed XX lb/day. [District Rule 2201] Y

S-2234-247 (Hot Oil Heater)

Hot oil heater shall only be fired on natural gas with a sulfur content not exceeding 1.0 gr S/100scf. [District Rules 2201 and 4320] Y
Emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.0085 lb-NOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0054 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320] Y

S-2234-248 (Vapor Controlled (Closed) Drain Tank)

A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 2,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rules 2201 and 4623] Y

VOC fugitive emissions in piping from tank to vapor control system trunk line shall not exceed 0.1 lb/day. [District Rule 2201] Y

VOC fugitive emissions associated with tank shall not exceed 0.2 lb/day. [District Rule 2201] Y

Gas-leak concentration shall be determined by EPA Method 21. [District Rule 2201] Y

Storage tank shall be equipped with a vapor recovery system consisting of a closed vent system that collects all VOCs from the storage tank, and a VOC control device. The vapor recovery system shall be APCO-approved and maintained in gas-tight condition. The VOC control device shall be either of the following: a vapor return or condensation system that connects to a gas pipeline distribution system, or an approved VOC destruction device the reduces the inlet VOC emissions by at least 99% by weight as determined by the test method specified in Section 6.4.7. [District Rules 2201and 4623] Y

The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rules 2201 and 4623] Y

Any tank gauging or sampling device on storage tank vented to the vapor recovery system shall be equipped with a leak-free cover which shall be closed at all times except during gauging or sampling. [District Rules 2201 and 4623] Y

Operator shall visually inspect storage tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shell and roof of the uninsulated tank for structural integrity annually. [District Rules 2210 and 4623] Y

Upon detection of a liquid leak from storage tank, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623] Y

Upon detection of a gas leak, defined as a VOC concentration of greater than 2,000 ppmv measured in accordance with EPA Method 21, operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection [District Rules 2201 and 4623] Y

Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623] Y

If a component type for storage tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623] Y

Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623] Y

S-2234-249-0 (Open Drain Tank)

Fugitive VOC emissions shall not exceed 0.2 lb/day. [District Rule 2201] Y

This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rules 2201 and 4623] Y

Monthly average daily throughput shall not exceed 285 gallons per day. [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

S-2234-247 (Hot Oil Heater)

The units are 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 5.0 MMBtu/hr* . Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule4320 of this evaluation.

2. Monitoring

S-2234-245 through'-249

Permittee shall maintain accurate component count and emissions calculated using the Average Leak Rate (ALR) equations for a 2,000 ppmv leak threshold included in EPA, "Protocol for Estimating Leak Emissions" (EPA - 453/R-95-017, November 1995). [District Rule 2201] Y

S-2234-247 (Hot Oil Heater)

As required by *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 5.0 MMBtu/hr*, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

Sulfur monitoring conditions are as follows:

Permittee shall measure sulfur content of gas used as fuel in heater within 60 days of startup and at least once every year thereafter. Such data shall be submitted to the District within 60 days of sample collection. [District Rules 2201 and 4801] N

Permittee shall determine sulfur content of gas combusted in heater using ASTM method D3246 or double GC for H2S and mercaptans. [District Rule 2201] N

3. Recordkeeping

S-2234-247 (Hot Oil Heater)

As required by *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 5.0 MMBtu/hr*, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

S-2234-245 through '-249
The following permit condition will be listed on 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]

4. Reporting

S-2234-245 through '-249

A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 2,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rule 2201] Y

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.

As shown by the AAQA summary sheet (**Attachment IX**) the proposed equipment will not cause a violation of an air quality standard for NO_X, CO, SO_X, or PM10

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Heater	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.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a SB 288/Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this project does constitute a SB 288/Federal Major Modification, therefore this requirement is applicable. The

Statewide Compliance Certification and Title V Compliance Certification forms are included in **Attachment X**.

H. Alternative Siting Analysis

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification. The current project is a Federal Major Modification and occurs at an existing gas plant.

During the conceptual phase of the project, pursuant to requirements outlined in the federal Clean Air Act, OEHI reviewed and considered various options in relation to the location and size of the proposed facility. The decision to proceed with the existing plan and location was based on economics, reliability, support facilities, existing infrastructure, as well as several issues related to health, safety, and environmental concerns.

The proposed location is adjacent to existing gas delivery facilities at Elk Hills. The proposed facility will be constructed on previously disturbed land alleviating environmental concerns related to endangered species at Elk Hills. As an adjacent operation to existing facilities, the plant will be capable of utilizing existing infrastructure for the delivery of gas thus further reducing the potential for land disturbance in the area. Furthermore, as this will be a process safety management (PSM) facility, the emergency management systems in place at the existing plants will be carried over to the new plant. This logical nexus of PSM facilities provides a seamless interface of existing programs wherein the overlap of programs lends itself to safer facility overall.

Currently, there is no other location at Elk Hills suitable for siting a new gas plant. As discussed above, any other location would require all new infrastructure resulting in monumental project expenses as well as sizable land disturbance issues associated with the new plant and associated delivery and sales pipeline construction and corridors. The proposed location will alleviate these potential concerns.

Another aspect of the conceptual design was the development of several alternatives. These included a plant with reduced throughput capacity, a plant with two trains, a plant with increased throughput capacity, and a do nothing alternative. The reservoir management team developed and reviewed a 10 and 20 - year horizon at Elk Hills. From this exercise coupled with knowledge of the reservoir characteristics at Elk Hills, it was determined that the do nothing alternative was not an option. Further, a plant with reduced throughput capacity would not provide sufficient gas handling capabilities. The twin-train system was considered. However, due to economic constraints associated with the construction, management, and maintenance of the twin system, this alternative was rejected in lieu of the current design.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may construct/operate under the ATC upon submittal of the Title V administrative amendment/minor modification application.

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 hot oil removal heater is fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Compliance is expected.

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

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

RMR Summary						
Categories	Amine Txt & Glycol Dehy Sys Fugitives (245-0 & 246-0)	Hot Oil Heater (Unit 247-0)	Closed Drain Tank (Unit 248-0)	Open Drain Tank (Unit 249-0)	Project Totals	Facility Totals
Prioritization Score	0.00	0.00	0.00	0.00	>1.0	>1.0
Acute Hazard Index	0.00	0.00	0.00	0.00	0.00	0.09
Chronic Hazard Index	0.00	0.00	0.00	0.00	0.00	0.03
Maximum Individual Cancer Risk (10^{-6})	0.00532	0.000315	0.00211	0.00266	0.0104	2.44
T-BACT Required?	No	No	No	No		
Special Permit Conditions?	No	Yes	No	No		

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is required for the hot oil heater because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project T-BACT is triggered for PM_{10} and VOC. T-BACT is satisfied with BACT for PM_{10} and VOC (see **Attachment IX**) and the following special condition is required:

Unit # 247-0

1. 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]

Compliance is expected.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.
S-2234-247 Hot Oil Heater
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-PM10/MMBtu
Percentage of PM as PM10 in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%

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

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

$$GL = 0.0053\ grain/dscf < 0.1\ grain/dscf$$

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

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

Compliance is expected.

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO_2, NO_2, 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. The values in the following table are calculated using the hourly heat input of the O2 Removal heater and Hot Oil Heater and the emission factor for the respective pollutant.

District Rule 4301 Limits			
Pollutant	NO_2	Total PM	SO_2
ATC S-2324-147(lb/hr)	0.0085 lb/MMBtu x 68 MMBtu/hr = 0.58	0.0076/MMBtu x 68 MMBtu/hr = 0.52	0.00285/MMBtu x 68 MMBtu/hr = 0.19
Rule Limit (lb/hr)	140	10	200

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

Rule 4320 – Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr

S-2234-247 Hot Oil Heater

Section 5.2 NOx and CO Emission Limits

The units are subject to the following NOx limits in Table 2, as shown below.

The applicant has proposed to meet the enhanced schedule NOx emission limits listed in the Table below:

Rule 4320 Emissions Limits				
Category	**Operated on gaseous fuel**		**Operated on liquid fuel**	
	NO_X Limit	**CO Limit**	**NO_X Limit**	**CO Limit**
B. Units with a total rated heat input > 20.0 MMBtu/hr, except for Categories C through G units	**a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or** b) Enhanced Schedule 5 ppmv or 0.0062 lb/MMBtu	400 ppmv	40 ppmv or 0.052 lb/MMBtu	400 ppmv

S-2234-247			
Pollutant	**Emission Factors**		**Source**
NO_X	0.0085 lb-NO_X/MMBtu	7 ppmvd NO_X (@ 3%O_2)	Burner Manufacturer
CO	0.037 lb-CO/MMBtu	50 ppmv CO (@ 3%O2)	Burner Manufacturer

Therefore, compliance with Section 5.2 of District Rule 4320 is expected.
A permit condition listing the emissions limits will be listed on permit as shown in the DEL section above.

Section 5.4 Particulate Matter Control Requirements

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, 2) limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic, 3) install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O2 or 4) 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.

The sulfur content of the combusted gas is limited to 1.0 gr S/100scf. Therefore compliance is expected.

Section 5.6, Startup and Shutdown Provisions

Applicable emissions limits are not required during startup and shutdown provided The duration of each start-up or each shutdown shall not exceed two hours, the emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown or operator has submitted an application for a Permit to Operate condition to allow more than two hours for each start-up or each shutdown provided the operator meets all of the conditions specified in Sections 5.6.3.1 through 5.6.3.3.

Applicant has not requested startup and shutdown provisions:

Section 5.7, Monitoring Provisions

Section 5.7 requires either use of an APCO approved Continuous Emissions Monitoring System (CEMS) for NOx, CO, and oxygen, or implementation of an APCO-approved Alternate Monitoring System.

In order to satisfy the requirements of District Rule 4320, the applicant has proposed to use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO_X, CO, and O_2 exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the permit in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

{4063} The permittee shall monitor and record the stack concentration of NO_X, CO, and O2 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]

{4064} If either the NO_X or CO concentrations corrected to 3% O2, 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 the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

{4065} 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]

{4066} The permittee shall maintain records of: (1) the date and time of NO_X, CO, and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOX and CO concentrations corrected to 3% O2, (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]

5.7.6 Monitoring SOx Emissions

Section 5.7.6.1 Operators complying with Sections 5.4.1.1 or 5.4.1.2 shall 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.

Section 5.7.6.2 Operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SOx reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO.

Section 5.7.6.3 Operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit to Operate. Source tests shall be performed in accordance with the test methods in Section 6.2.

Applicant will provide a fuel sulfur analysis at startup and annually thereafter as stated in the following ATC conditions:

Permittee shall measure sulfur content of gas incinerated in flare within 60 days of startup and at least once every year thereafter. Such data shall be submitted to the District within 60 days of sample collection. [District Rules 2201 and 4801] N

Permittee shall determine sulfur content of gas flared using ASTM method D3246 or double GC for H2S and mercaptans. [District Rule 2201] N

Section 5.8, Compliance Determination

The following conditions reflect the compliance determination requirements of the rule:

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

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] Y

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 and 4306] Y

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

Section 6.1 Recordkeeping

No proposed changes to recordkeeping requirements are proposed or applicant has proposed the following change to recordkeeping requirements:

Section 6.2 Test Methods

The following test methods are proposed which reflect compliance with this section of the rule:

NOx 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 and 4306] Y

CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305 and 4306] Y

Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305 and 4306] Y

Section 6.3 Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.2 not less than once every 12 months (no more than 30 days before or after the required annual source test date). Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

Section 6.3.1.1 Units that demonstrate compliance on two consecutive 12-month source tests may defer the following 12-month source test for up to 36 months (no more than 30 days before or after the required 36-month source test date). During the 36-month source testing interval, the operator shall tune the unit in accordance with the provisions of Section 5.5.1, and

shall monitor, on a monthly basis, the unit's operational characteristics recommended by the manufacturer to ensure compliance with the applicable emission limits specified in Section 5.2. Section 6.3.1.2 Tune-ups required by Sections 5.5.1 and 6.3.1 do not need to be performed for units that operate and maintain an APCO approved CEMS or an APCO approved Alternate Monitoring System where the applicable emission limits are periodically monitored. Applicant will implement Monitoring Scheme "A" and therefore this section is not applicable.

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

3467} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]

{3466} Source testing to measure NOx and CO emissions from this unit while fired on natural gas 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]

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

Conclusion

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

Rule 4408 Glycol Dehydration Systems

This rule applies to any glycol dehydration system with a glycol dehydration vent that is subject to permitting requirements pursuant to Regulation II (Permits). The proposed system does not have a glycol vent but uses closed circulated hot oil system as the heat source. Therefore the rule is not applicable.

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

The proposed GTU is subject to the rule requirements as listed in the facility wide PTO S-2234-0-2. Compliance is expected.

Rule 4623 Storage of Organic Liquids

Section 5.1 requires that an operator shall not place, hold, or store organic liquid in any tank unless such tank is equipped with a VOC control system. The amine storage tank, produced water tank, and fresh water tank will be connected to vapor control system vented to a gas pipeline. The expected control efficiency is 99%.

The following conditions will be included on the ATCs:

Vapor Controlled Closed Drain Tank S-2234-248

Gas-leak concentration shall be determined by EPA Method 21. [District Rule 2201] Y

Tank shall be equipped with a vapor recovery system consisting of a closed vent system that collects all VOCs from the storage tank, and a VOC control device. The vapor recovery system shall be APCO-approved and maintained in gas-tight condition. The VOC control device shall be either of the following: a vapor return or condensation system that connects to a gas pipeline distribution system, or an approved VOC destruction device that reduces the inlet VOC emissions by at least 99% by weight as determined by the test method specified in Section 6.4.7. [District Rules 2201and 4623] Y

The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rules 2201 and 4623] Y

All piping, valves, and fittings shall be constructed and maintained in a leak-free condition. [District Rules 2201 and 4623] Y

A leak-free condition is defined as a condition without a gas leak. A gas leak is defined as a reading in excess of 10,000 ppmv, above background, as measured by a portable hydrocarbon detection instrument in accordance with the procedures specified in EPA Test Method 21. A reading in excess of 10,000 ppmv above background is a violation of this permit and Rule 4623 and shall be reported as a deviation. [District Rules 2201and 4623] Y

Any tank gauging or sampling device on a tank vented to the vapor recovery system shall be equipped with a leak-free cover which shall be closed at all times except during gauging or sampling. [District Rules 2201 and 4623] Y

Operator shall visually inspect tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shell and roof of the uninsulated tank for structural integrity annually. [District Rules 2210 and 4623] Y

Upon detection of a liquid leak, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623] Y

Upon detection of a gas leak, defined as a VOC concentration of greater than 10,000 ppmv measured in accordance with EPA Method 21, operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection [District Rules 2201 and 4623] Y

Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623] Y
Leaking components that have been discovered by the operator that have been immediately tagged and repaired within the timeframes specified in District Rule 4623, Table 3 shall not constitute a violation of this rule. Leaking components as defined by District Rule 4623 discovered by District staff that were not previously identified and/or tagged by the operator, and/or any leaks that were not repaired within the timeframes specified in District Rule 4623, Table 3 shall constitute a violation of this rule. [District Rules 2201 and 4623] Y

If a component type for the tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623] Y

Any component found to be leaking on two consecutive annual inspections is in violation of the District Rule 4623, even if it is under the voluntary inspection and maintenance program. [District Rule 2201] Y

Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623] Y

S-2234-249-0 Open Drain Tank

Section 4.4 states that tanks exclusively receiving and/or storing an organic liquid with a true vapor pressure (TVP) less than 0.5 psia are exempt from all other requirements except for complying with TVP and API gravity testing provisions pursuant to section 6.2, recordkeeping provisions pursuant to section 6.3.6, test methods provisions pursuant to section 6.4, and compliance schedules pursuant to section 7.2.

The facility has proposed to meet TVP of less than 0.5 psi for the organic liquid stored in the tank. This tank is not served by any vapor recovery system. Therefore, the following conditions will be placed on the permit:

- Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623]

- TVP and API gravity test records shall be submitted to the District within 45 days after the date of testing. The record shall include the tank identification number, permit number, type of stored organic liquid, TVP and API gravity of the stored organic liquid, test methods used, and a copy of the test results. [District Rule 4623]

- API gravity shall be determined using ASTM Method D 287-92 (200) e1 "Standard Test Method for API gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)". Sampling for API gravity shall be performed in accordance with ASTM Method D 4057-95 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products". Should the permittee determine that another method is more appropriate for API gravity, the methodology must be approved by the District and US EPA prior to its use. [District Rule 4623]

- TVP of an organic liquid shall be determined by measuring the Reid Vapor Pressure (RVP) using ASTM D323-94 (Test Method for Vapor Pressure for Petroleum Products), and converting the RVP to TVP at the tank's maximum organic liquid storage temperature. The conversion of RVP to TVP shall be done in accordance with the procedure listed in Appendix B of Rule 4623. Should the permittee determine that another method is more appropriate for TVP testing, the methodology must be approved by the District and US EPA prior to its use. [District Rule 4623]

Rule 4801 Sulfur Compounds

The gas combusted in the hot oil heater will contain no more than 1.0 gr S/100 scf and therefore is expected to have exhaust sulfur compound emissions much less than 2000 ppmv. Therefore compliance with this rule is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental

documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

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

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.
Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's engineering evaluation (this document – **Attachment XI** demonstrates that project specific greenhouse gas emissions will be reduced by at least 29%, compared to business-as-usual (BAU).

The BAU case is considered representative of a typical GTU and includes the following characteristics:

BAU
GTU Process Equipment (fugitives and hot oil heater) = 31,636 tons CO2/yr (calculated above)*

Flaring of waste gas streams rather than injection = 86,682 tons CO2/yr**
Total = 118,318 tons CO_2/yr

*proposed design case
calculations – typical operation of amine/dehydration operation to is flare the waste gas stream **Attachment XI

Reduction in GHG emissions = 100 x (118,318 – 31,636)/118,318 = 73.3%

The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt

from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct S-2234-245-0 through '-249-0 subject to the conditions included on the attached draft Authority to Construct in **Attachment XII**.

X. Billing Information

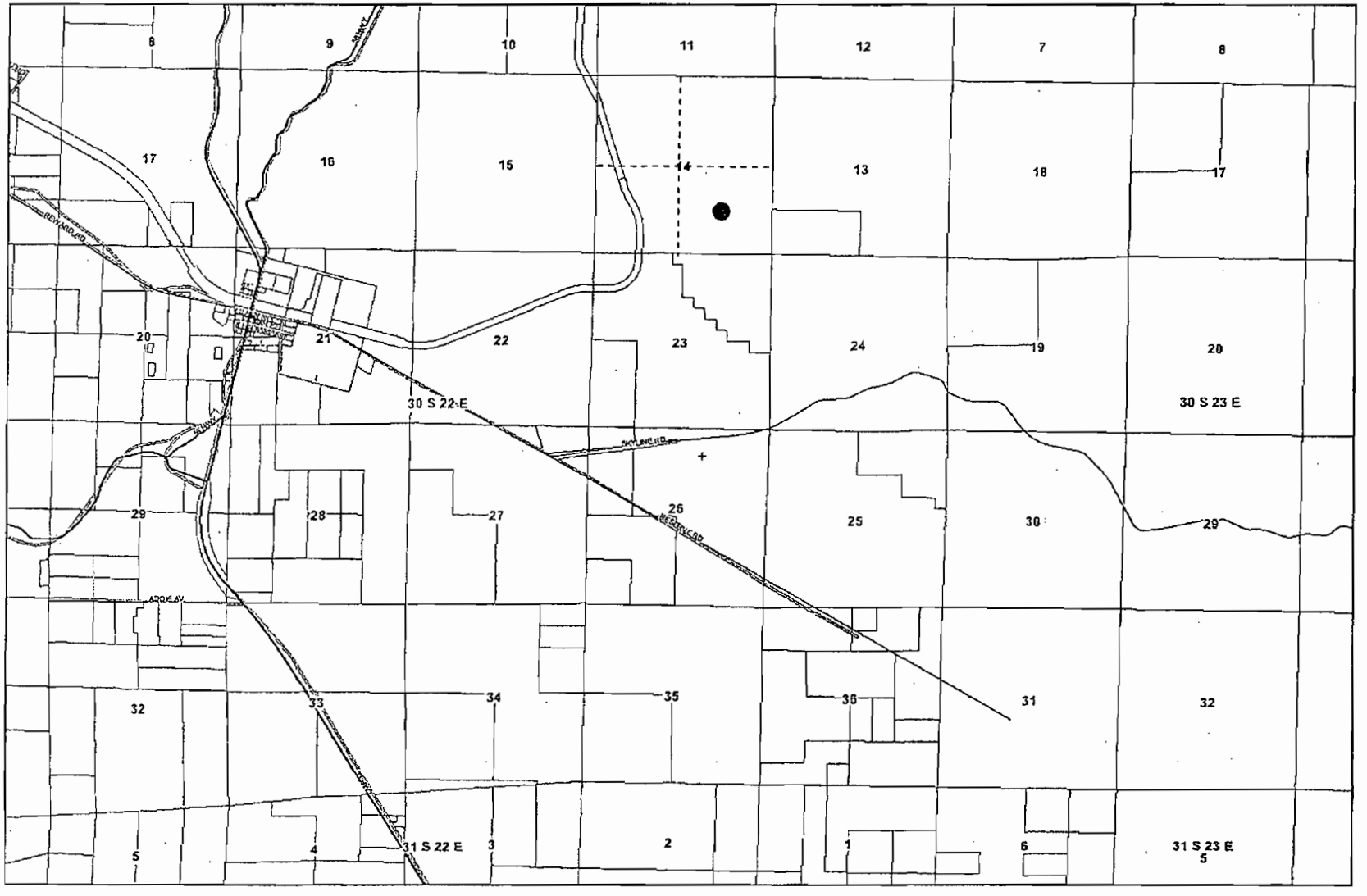
Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-2234-245	3020-01G	1335 hp	$815.00
S-2234-246	3020-01A	25 hp	$87.00
S-2234-247	3020-02H	68.0 MMBtu/hr	$1030.00
S-2234-248	3020-05A	2000 gallons	$75.00
S-2234-249	3020-05A	2000 gallons	$75.00

Attachments

I: Project Location Map
II: Process Flow Diagrams
III: Manufacturer's Information on Low NOx Burner
IV: Fugitive Emissions
V: Uncontrolled Tank Emissions
VI: Emissions Profiles
VII: BACT Guidelines
VIII: BACT Analysis
IX: HRA/AAQA
X: Statewide and Title V Compliance Certification Forms
XI: Speadsheets for GHG Calculations
XII: Draft ATCs

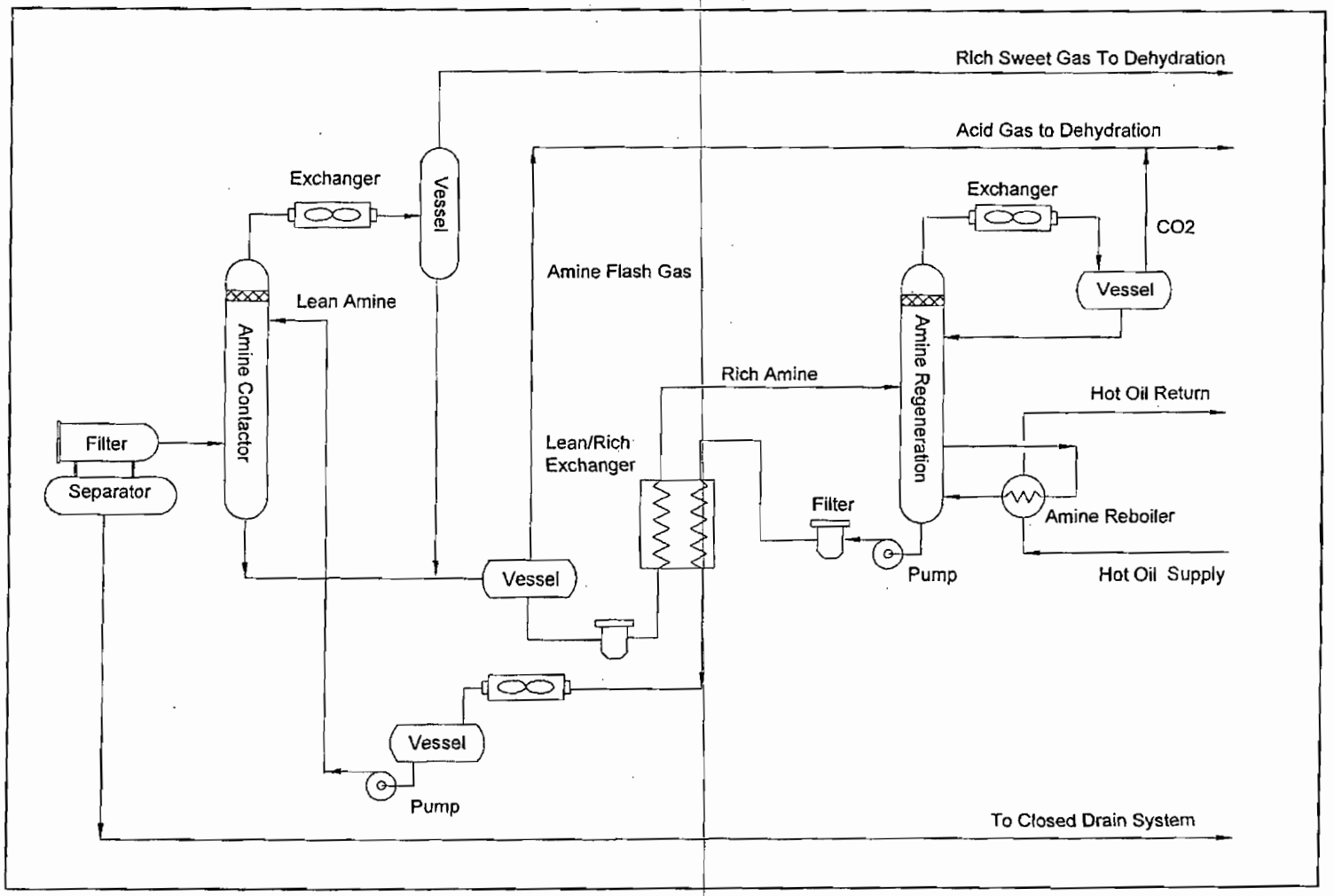
ATTACHMENT I
Project Location Map

Location Of
14Z Gas Treating Unit (SE ¼, Section 14, T30S/R22E)



ATTACHMENT II
Process Flow Diagrams

Figure 1.2
14Z Amine Treating System for CO2 Removal



ATTACHMENT III
Manufacturer's Information on Low NOx Burner

DICKSON PROCESS SYSTEMS

YOUR INQUIRY NO. PJ-4714
OUR ESTIMATE ONLY NO. 2011-EO-002
JANUARY 28, 2011

INDEX TO PROPOSAL

BY: OPTIMIZED PROCESS FURNACES, INC.

SECTION II

OPTIMIZED PROCESS FURNACES, INC.
ESTIMATE ONLY NO. 2011-EO-002
1/28/11

	PURCHASER / OWNER: Occidental Petroleum			ITEM NO: PJ-4714						
	SERVICE: Hot Oil Heater			LOCATION: Elk Hills						
1	UNIT			* NUMBER REQUIRED: 1						REV
2	MANUFACTURER: OPTIMIZED PROCESS FURNACES, INC.			REFERENCE: 2011-EO-002						
3	TYPE OF HEATER: Vertical Cylindrical, Natural Draft									
4	TOTAL HEATER ABSORBED DUTY, MM Btu/hr.: 38.4									
5	**PROCESS DESIGN CONDITIONS**									
6	* OPERATING CASE	Design								
7	HEATER SECTION	RADIANT								
8	SERVICE	Hot Oil								
9	HEAT ABSORPTION, MM Btu/hr.	38.40								
10	FLUID	Therminol 59								
11	FLOW RATE, Lb/hr.	653,174								
12	FLOW RATE, B.P.D.									
13	PRESSURE DROP, ALLOWABLE (CLEAN / FOULED), Psi.	40	-							
14	PRESSURE DROP, CALCULATED (CLEAN / FOULED), Psi.	39.0	-							
15	AVG. RAD., SECT. FLUX DENSITY, ALLOWABLE, Btu/hr-ft^2.	12,000								
16	AVG. RAD., SECT. FLUX DENSITY, CALCULATED, Btu/hr-ft^2.	12,000								
17	MAX. RAD., SECT. FLUX DENSITY, Btu/hr-ft^2.	21,600								
18	CONV., SECT. FLUX DENSITY, (BARE TUBE), Btu/hr-ft^2.	21,000								
19	VELOCITY LIMITATION, ft/s.									
20	PROCESS FLUID MASS VELOCITY, Lb/sec-ft^2.	513								
21	MAXIMUM ALLOW. / CALC. INSIDE FILM TEMPERATURE, °F.		455							
22	FOULING FACTOR, hr-ft^2-°F/Btu.	0.003								
23	COKING ALLOWANCE, in.	-								
24	**INLET CONDITIONS**									
25	TEMPERATURE, °F.	300								
26	PRESSURE, (Psig)	100								
27	LIQUID FLOW, Lb/hr.	653,174								
28	VAPOR FLOW, Lb/hr.	0								
29	LIQUID GRAVITY, (#/FT3)	49.0								
30	VAPOR MOLECULAR WEIGHT	0								
31	VISCOSITY, (LIQUID / VAPOR), cP.	1.311	0							
32	SPECIFIC HEAT, (LIQUID / VAPOR), Btu/Lb-°F.	0.565	0							
33	THERMAL CONDUCTIVITY, (LIQUID / VAPOR), Btu/hr-ft-°F.	0.0656	0							
34	**OUTLET CONDITIONS**									
35	TEMPERATURE, °F.	400								
36	PRESSURE, (Psig)	50								
37	LIQUID FLOW, Lb/hr.	653,174								
38	VAPOR FLOW, Lb/hr.	0								
39	LIQUID GRAVITY, (#/FT3)	46.5								
40	VAPOR MOLECULAR WEIGHT	0								
41	VISCOSITY, (LIQUID / VAPOR), cP.	0.718	0							
42	SPECIFIC HEAT, (LIQUID / VAPOR), Btu/Lb-°F.	0.612	0							
43	THERMAL CONDUCTIVITY, (LIQUID / VAPOR), Btu/hr-ft-°F.	0.0618	0							
44	**REMARKS AND SPECIAL REQUIREMENTS:**									
45	DISTILLATION DATA OR FEED COMPOSITION:									
46	SHORT TERM OPERATING CONDITIONS:									
47										
48	NOTES:									
49										
50										
51										
52										
53										
54										
55										
56										
57										
58										

FIRED HEATER DATA SHEET API STANDARD 560	CUSTOMARY UNITS			
	PROJECT NUMBER	DOCUMENT NUMBER	SHEET	REV
			1 OF 6	

COMBUSTION DESIGN CONDITIONS

					REV
1	* OPERATING CASE	DESIGN			
2	* TYPE OF FUEL	Fuel Gas			
3	* EXCESS AIR, %	15			
4	CALCULATED HEAT RELEASE (LHV), MM Btu/hr.	45.18			
5	FUEL EFFICIENCY CALCULATED, % (LHV)	88.5			
6	FUEL EFFICIENCY GUARANTEED, % (LHV)	87.5			
7	RADIATION LOSS, PERCENT OF HEAT RELEASE (LHV)	1.5			
8	FLUE GAS TEMPERATURE LEAVING: RADIANT SECTION, °F.	1494			
9	CONVECTION SECTION, °F.	466			
10	AIR PREHEATER, °F.	-			
11	FLUE GAS QUANTITY, Lb/hr.	44,500			
12	FLUE GAS MASS VELOCITY THRU CONV. SECTION, Lb/sec-ft^2	0.27			
13	DRAFT: AT ARCH, in-H_2O	0.1			
14	AT BURNERS, in-H_2O	0.41			
15	AMBIENT AIR TEMPERATURE, EFFICIENCY CALCULATION, °F.	60			
16	* AMBIENT AIR TEMPERATURE, STACK DESIGN, °F.	60			
17	* ALTITUDE ABOVE SEA LEVEL, ft.				
18	VOLUMETRIC HEAT RELEASE (LHV), Btu/hr-ft^3	8911			

FUEL CHARACTERISTICS

19								
20	* GAS TYPE		* LIQUID TYPE			* OTHER TYPE		
21	* LHV,	Btu/(Lb) (Scf)	* LHV			* LHV,	Btu/(Lb) (Scf)	
22	* HHV,	Btu/(Lb) (Scf)	* HHV,		Btu/Lb.	* HHV,	Btu/(Lb) (Scf)	
23	* PRESS. @ BURNER,	Psig.	* PRESS. @ BURNER,		Psig.	* PRESS. @ BURNER,	Psig.	
24	TEMP. @ BURNER,	°F.	* TEMP. @ BURNER,		°F.	* TEMP. @ BURNER,	°F.	
25	* MOLECULAR WEIGHT		* VISCOSITY @		SSU.	* MOLECULAR WEIGHT		
26			* ATOMIZING STEAM TEMP.,		°F.			
27	COMPOSITION	MOLE %	* ATOMIZING STEAM PRESSURE,		Psig.	* COMPOSITION	MOLE %	
28								
29			* COMPOSITION	WT%				
30								
31								
32								
33								
34			* VANADIUM (PPM)					
35			* SODIUM (PPM)					
36			* SULFUR					
37			* ASH					

BURNER DATA:

39	MANUFACTURER: COEN	SIZE / MODEL:	C-RMB	NUMBER: 1	
40	TYPE: ULTRA LOW NOX	LOCATION: FLOOR		ORIENTATION: UPFIRE	
41	HEAT RELEASE PER BURNER, MM Btu/hr.	DESIGN:	NORMAL:	MINIMUM:	
42	PRESSURE DROP ACROSS BURNER @ DESIGN HEAT RELEASE, In H_2O:		0.41		
43	DISTANCE BURNER CENTER LINE TO TUBE CENTER LINE; HORIZONTAL, ft.		HORIZONTAL:	VERTICAL:	
44	DISTANCE BURNER CENTER LINE TO UNSHIELDED REFRACTORY, ft.		HORIZONTAL:	VERTICAL:	
45	* PILOT, TYPE: GAS	CAPACITY, BTU / HR:	90000		
46	* IGNITION METHOD: ELECTRIC				
47	* FLAME SCANNERS, LOCATION:		NUMBER:		
48	REQUIRED EMISSIONS:	ppmv(d) (CORRECTED TO 3% 02)	NOx:	CO:	SOx
49		Lb/ MM Btu (LHV)	UHC:	PARTICULATES:	
50	NOTES:				
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					

	MECHANICAL DESIGN CONDITIONS					REV
1	* PLOT LIMITATIONS:		* STACK LIMITATIONS:			
2	* TUBE LIMITATIONS:		* NOISE LIMITATIONS:			
3	* STRUCTURAL DESIGN DATA: WIND VELOCITY:		*WIND OCCURRENCE:			
4	SNOW LOAD:		* SEISMIC ZONE:			
5	* MIN./ NORMAL / MAX. AMBIENT AIR TEMPERATURE, °F:		* RELATIVE HUMIDITY, %:			
6	HEATER SECTION:	RADIANT	SHOCK	CONVECTION	STEAM COIL	
7	SERVICE:					
8	**COIL DESIGN:**					
9	* DESIGN BASIS: TUBE WALL THICKNESS (CODE OR SPECIFICATION):	API RP530				
10	RUPTURE STRENGTH (MINIMUM OR AVERAGE):					
11	*DESIGN LIFE, hr.	100,000				
12	* DESIGN PRESSURE, ELASTIC / RUPTURE, Psig.	100				
13	* DESIGN FLUID TEMPERATURE, °F.	400				
14	* TEMPERATURE ALLOWANCE, °F.	0				
15	* CORROSION ALLOWANCE, TUBES / FITTINGS, in.	0.125				
16	HYDROSTATIC TEST PRESSURE, Psig.	150 min				
17	* POST WELD HEAT TREATMENT (YES or NO)	NO				
18	* PERCENT OF WELDS FULLY RADIOGRAPHED	10				
19	MAXIMUM (CLEAN) TUBE METAL TEMPERATURE, °F.	485				
20	DESIGN TUBE METAL TEMPERATURE, °F.	550				
21	INSIDE FILM COEFFICIENT, Btu/hr-ft-°F.	271				
22	**COIL ARRANGEMENT:**					
23	TUBE ORIENTATION: VERTICAL or HORIZONTAL	VERTICAL	HORIZONTAL	HORIZONTAL		
24	* TUBE MATERIAL (ASTM SPECIFICATION AND GRADE)	A-106 Gr B	A-106 Gr B	A-106 Gr B		
25	TUBE OUTSIDE DIAMETER, in.	4.5	4.5	4.5		
26	TUBE WALL THICKNESS, (AVERAGE), in.	0.237	0.237	0.237		
27	NUMBER OF FLOW PASSES	4	4	4		
28	NUMBER OF TUBES / NUMBER OF TUBE ROWS	68	24 / 2	48 / 4		
29	NUMBER OF TUBES PER ROW (CONVECTION SECTION)	-	12	12		
30	OVERALL TUBE LENGTH, ft.	28.98	14.67	14.67		
31	EFFECTIVE TUBE LENGTH, ft.	30	13	13		
32	BARE TUBES: NUMBER	68	24	-		
33	TOTAL EXPOSED SURFACE, ft.	2403	368	-		
34	EXTENDED SURFACE TUBES: NUMBER	-	-	48		
35	TOTAL EXPOSED SURFACE, ft.	-	-	9385		
36	TUBES LAYOUT (INLINE or STAGGERED)	INLINE	STAGGERED	STAGGERED		
37	TUBE SPACING, CENT. TO CENT.: HORIZONTAL, in.	8	8	8		
38	DIAGONAL, in.	-	8	8		
39	VERTICAL, in.	-	6.9	6.9		
40	SPACING TUBE CENT..TO FURNACE WALL, in.	6	-	-		
41	CORBELS (YES or NO):	NO	NO	YES		
42	CORBEL WIDTH, in.					
43	**DESCRIPTION OF EXTENDED SURFACE:**					
44	TYPE: (STUDS) (SERRATED FINS) (SOLID FINS)			Serrated		
45	MATERIAL			Carbon Steel		
46	DIMENSIONS: HEIGHT, in.			1		
47	THICKNESS, in.			0.05		
48	SPACING (No. / in.)			5		
49	MAXIMUM TIP TEMPERATURE, (CALCULATED), °F.			807		
50	EXTENSION RATIO (TOTAL AREA / BARE AREA)			12.77		
51	**PLUG TYPE HEADERS: NONE**					
52	* TYPE					
53	* MATERIAL (ASTM SPECIFICATION AND GRADE)					
54	NOMINAL RATING					
55	* LOCATION (ONE OR BOTH ENDS)					
56	WELDED OR ROLLED JOINT					
57						
58						
59						
60						
61						
62						

	MECHANICAL DESIGN CONDITIONS (Cont'd)					REV
1	HEATER SECTION	RADIANT	SHOCK	CONVECTION	STEAM COIL	
2	SERVICE					
3	**RETURN BENDS:**					
4	TYPE	U-BEND	U-BEND	U-BEND		
5	*MATERIAL (ASTM SPECIFICATION AND GRADE)	A234 Gr WPB	A234 Gr WPB	A234 Gr WPB		
6	NOMINAL RATING OR SCHEDULE	Sch40	Sch40	Sch40		
7	LOCATION (F.B.=FIREBOX, H.B.=HEADER BOX)	FB	HB	HB		
8	**TERMINALS AND OR MANIFOLDS:**					
9	* TYPE (BEV.=BEVELED, MAN.=MANIFOLD, FLG.=FLANGED	FLANGED		FLANGED		
10	* INLET: MATERIAL (ASTM SPECIFICATION AND GRADE)			A-106 Gr B		
11	SIZE			4"		
12	SCHEDULE OR THICKNESS			Sch40		
13	NUMBER OF TERMINALS			4		
14	FLANGE MATERIAL (ASTM SPEC. AND GRADE)			A-105		
15	FLANGE SIZE AND RATING			4"-300#		
16	* OUTLET: MATERIAL (ASTM SPECIFICATION AND GRADE)	A-106 Gr B				
17	SIZE	4"				
18	SCHEDULE OR THICKNESS	Sch40				
19	NUMBER OF TERMINALS	4				
20	FLANGE MATERIAL (ASTM SPEC. AND GRADE)	A-105				
21	FLANGE SIZE AND RATING	4"-300#				
22	* MANIFOLD TO TUBE CONN. (WELDED, EXTRUDED, ETC.)					
23	MANIFOLD LOCATION (INSIDE OR OUTSIDE HEADER BOX)	Manifolds By Others		Manifolds By Others		
24	**CROSSOVERS:**					
25	* WELDED OR FLANGED		WELDED			
26	* PIPE MATERIAL (ASTM SPECIFICATION AND GRADE)		A-106 Gr B			
27	PIPE SIZE		4"			
28	PIPE SCHEDULE OR THICKNESS		Sch40			
29	* FLANGE MATERIAL		-			
30	FLANGE SIZE / RATING		-			
31	* LOCATION (INTERNAL / EXTERNAL)		EXTERNAL			
32	FLUID TEMPERATURE, °F.		329			
33	**TUBE SUPPORTS:**					
34	LOCATION (ENDS, TOP, BOTTOM)	TOP	ENDS	ENDS		
35	MATERIAL (ASTM SPECIFICATION AND GRADE)	25Cr-20Ni	A36	A36		
36	DESIGN METAL TEMPERATURE, °F.					
37	THICKNESS, IN.		1/2	1/2		
38	INSULATION: THICKNESS, in.		4	4		
39	MATERIAL		LHV	LHV		
40	ANCHOR (MATERIAL AND TYPE)		304 SS V-anchors	304 SS V-anchors		
41	**INTERMEDIATE TUBE SUPPORTS:**					
42	* MATERIAL (ASTM SPECIFICATION AND GRADE)					
43	DESIGN METAL TEMPERATURE, °F.					
44	THICKNESS, IN.					
45	SPACING, ft.					
46	**TUBE GUIDES:**					
47	LOCATION	BOTTOM				
48	* MATERIAL	25Cr-20Ni				
49	TYPE / SPACING					
50	**HEADER BOXES:**					
51	LOCATION: CONVECTION ENDS		HINGED DOOR / BOLTED PANEL	BOLTED PANEL		
52	CASING MATERIAL: CS		THICKNESS, in.	3/16		
53	LINING MATERIAL: Ceramic Fiber		THICKNESS, in.	1		
54	ANCHOR (MATERIAL AND TYPE):					
55	NOTES:					
56						
57						
58						

MECHANICAL DESIGN CONDITIONS (Cont'd)

						REV
1	**REFRACTORY DESIGN BASIS:**					
2	AMBIENT, °F: 80	WIND VELOCITY, mph: 0		CASING TEMP., °F:	180	
3	**EXPOSED VERTICAL WALLS: NONE**					
4	LINING THICKNESS, in.:		HOT FACE TEMPERATURE, SERVICE, °F: 2300	CALCULATED, °F:		
5	WALL CONSTRUCTION:					
6						
7	ANCHOR (MATERIAL & TYPE):					
8	CASING MATERIAL:		THICKNESS, in.:	TEMPERATURE, °F:		
9	**SHIELDED VERTICAL WALLS:**					
10	LINING THICKNESS, in:	9	HOT FACE TEMPERATURE, SERVICE, °F: 2300	CALCULATED, °F:	974	
11	WALL CONSTRUCTION:	Ceramic Fiber 1"-8#, 2"-8#				
12						
13	ANCHOR (MATERIAL & TYPE):	304 SS Pins & Clips				
14	CASING MATERIAL:	CS	THICKNESS, in.: 1/4	TEMPERATURE, °F:	152	
15	**ARCH:**					
16	LINING THICKNESS, in.:	5	HOT FACE TEMPERATURE, SERVICE, °F: 2300	CALCULATED, °F:	1494	
17	WALL CONSTRUCTION:	Ceramic Fiber 2"-8#, 3"-6#				
18						
19	ANCHOR (MATERIAL & TYPE):	310 SS Pins & Clips				
20	CASING MATERIAL:	CS	THICKNESS, in.: 1/4	TEMPERATURE, °F:	172	
21	**FLOOR:**					
22	LINING THICKNESS, in.:	9	HOT FACE TEMPERATURE, SERVICE, °F: 2400	CALCULATED, °F:	1494	
23	FLOOR CONSTRUCTION:	LHV-9"				
24						
25	CASING MATERIAL:	CS	THICKNESS, in.: 1/4	TEMPERATURE, °F:	195 (1)	
26	MIN. FLOOR ELEVATION, ft.		FREE SPACE BELOW PLENUM, ft:			
27	**CONVECTION SECTION:**					
28	LINING THICKNESS, in.:	3		CALCULATED, °F:	1041	
29	WALL CONSTRUCTION:	Ceramic Fiber 1"-8#, 2"-6#				
30						
31	ANCHOR (MATERIAL & TYPE):	304 SS Pins & Clips				
32	CASING MATERIAL:	CS	THICKNESS, in.: 3/16	TEMPERATURE, °F:	161	
33	**INTERNAL WALL:**					
34	TYPE:		MATERIAL:			
35	DIMENSION, HEIGHT / WIDTH, ft.:					

	DUCTS:	**FLUE GAS**			**COMBUSTION AIR**	
37	LOCATION	Stack FGR				
38	SIZE, ft. OR NET FREE AREA, ft²					
39	CASING MATERIAL	A36				
40	CASING THICKNESS, in.	3/16				
41	LINING: INTERNAL / EXTERNAL					
42	THICKNESS, in.					
43	MATERIAL					
44	ANCHOR (MATERIAL & TYPE)					
45	CASING TEMPERATURE, °F.					

46	**PLENUM CHAMBER (AIR):**			
47	TYPE OF PLENUM (COMMON OR INTEGRAL):			
48	CASING MATERIAL:	THICKNESS, in.:	SIZE, ft.:	
49	LINING MATERIAL:		THICKNESS, in.:	
50	ANCHOR (MATERIAL & TYPE):			
51	NOTES:			
52	(1) At the burner face			
53				
54				
55				
56				
57				
58				

MECHANICAL DESIGN CONDITIONS (Continued)

STACK OR STACK STUB:

							REV
NUMBER:	1	SELF-SUPPORTED OR GUYED:	Self-Supported	LOCATION: TOP OF CONVECTION			
CASING MATERIAL:	CS	THICKNESS, in. :	1/4	*MINIMUM THICKNESS, in. : 1/4			
OUTSIDE METAL DIAMETER, ft. :	5' - 0"	HEIGHT ABOVE GRADE, ft. :		STACK LENGTH, ft. :	35' - 0"		
LINING MATERIAL:	-			THICKNESS, in. :	-		
ANCHOR (MATERIAL AND TYPE):	-						
*EXTENT OF LINING:	-	INTERNAL OR EXTERNAL:	-				
DESIGN FLUE GAS VELOCITY, ft/sec.:	17	FLUE GAS TEMPERATURE, °F. :	468				

DAMPERS:

*LOCATION:	Stack				
TYPE (CONTROL, TIGHT SHUT-OFF, ETC.)	Control				
MATERIAL: BLADE	CS				
SHAFT	CS				
MULTIPLE / SINGLE LEAF	Multiple				
PROVISION FOR OPERATION (MANUAL OR AUTOMATIC)	Automatic				
TYPE OF OPERATOR (CABLE OR PNEUMATIC)	Pneumatic				

PLATFORMS:

*LOCATION	NUMBER	WIDTH	LENGTH	STAIRS / LADDER	ACCESS FROM
Hearth	1	3'	360°	Ladder	Grade
Convection	3	3', 4', 6'	Length of side/end walls	Ladder	Hearth
Stack damper	1	3'	270°	Ladder	Convection
EPA Connection	1	3'	180°	Ladder	Damper

TYPE OF FLOORING:

DOORS:

TYPE	NUMBER	LOCATION	SIZE	BOLTED/HINGED
*ACCESS	1	Radiant Floor	24" x 24"	Bolted
	1	Convection Roof	24" x 24"	Bolted
OBSERVATION	1/burner	Radiant Wall	5" x 9"	Hinged
TUBE REMOVAL	1	Radiant Roof	24" x 24"	Bolted

MISCELLANEOUS:

INSTRUMENT CONNECTIONS		NUMBER	SIZE	TYPE
*COMBUSTION AIR:	TEMPERATURE			
	PRESSURE			
FLUE GAS:	TEMPERATURE	2	1-1/2"	150# RFWN
	PRESSURE	2	1-1/2"	150# RFWN
*FLUE GAS SAMPLE		3	4"	150# RFWN
*SNUFFING STEAM / PURGE		2	1-1/2"	150# RFWN
*02 ANALYZER		1	4"	150# RFWN
*VENTS / DRAINS				
*PROCESS FLUID TEMPERATURE				
*TUBESKIN THERMOCOUPLES				

*PAINTING REQUIREMENTS:

*INTERNAL COATING:

*GALVANIZING REQUIREMENTS:

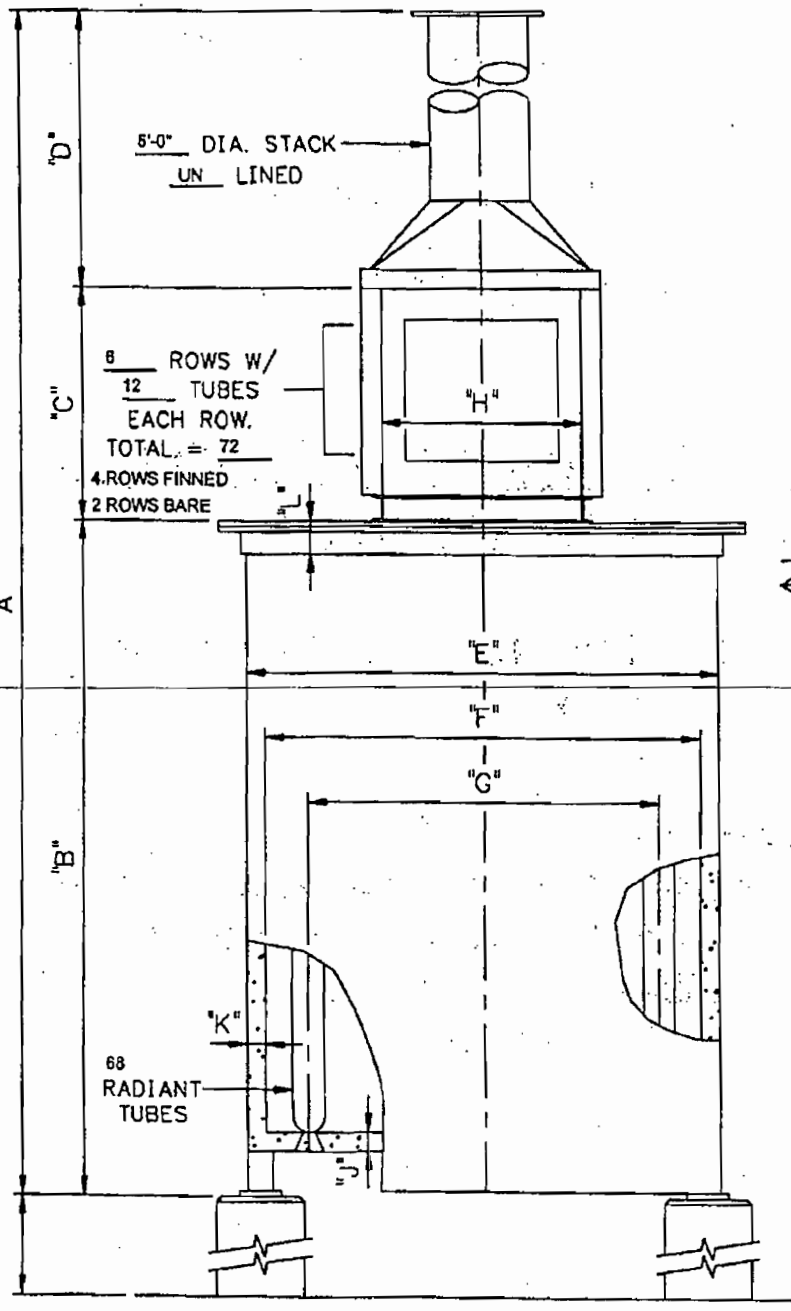
ARE PAINTERS TROLLEY AND RAIL INCLUDED (YES OR NO):

*SPECIAL EQUIPMENT: SOOTBLOWERS:
AIR PREHEATER:
FAN(S)):
OTHER:

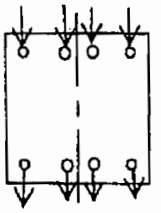
NOTES:

Doors and miscellaneous entries are for example only and may be altered by the customer to fit their needs. Platforms are available as an adder.

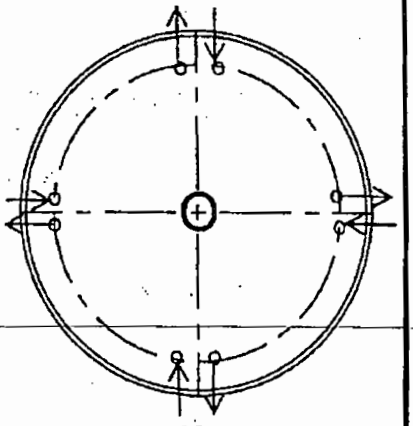
OPTIMIZED PROCESS FURNACES, INC.
ESTIMATE ONLY NO. 2011-EO-002
1/28/11



SCHEMATIC FLOW



CONVECTION



RADIANT
INLETS AT TOP
OUTLETS AT TOP
CROSSOVERS EXTERNAL & FIELD WELDED

DIMENSION SCHEDULE

"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"			
75'-2"	32'-9"	7'-5"	35'-0"	15'-11"	15'-5"	14'-5"	8'-10"	0'-9"	0'-3"	0'-5"			

OPTIMIZED PROCESS FURNACES, INC.
P.O. BOX 708
CHANUTE, KANSAS 66720

TITLE HOT OIL HEATER

ESTIMATE ONLY NO. 2011-EO-002 | REV. 0

Your Inquiry No. PJ-4714
Our Estimate Only No. 2011-EO-002
BURNER/INSTRUMENT & CONTROL SYSTEM PACKAGE

COEN®
COEN COMPANY, INC.

BURNER/INSTRUMENT & CONTROL SYSTEM PACKAGE

One (1) C-RMB™ Ultra Low NOx NG burner Package

For:

Occidental of Elk Hills, Inc.
A subsidiary of Occidental Petroleum Corporation
Elk Hills Gas Plant & Fractionation Facility
Elks Hills, California
Train Project

COEN®

TODD®

COEN®
COEN COMPANY, INC.

TODD

Reference: Occidental of Elk Hills, Inc., Elk Hills, CA
A subsidiary of Occidental Petroleum Corporation
Train project
(1) 55.99 MMBTU 5 PPM Ultra Low NOx Burner (with 49.06 mmbtu/hr Start-up condition to meet 9 PPM)

Coen® is pleased to offer the following revised proposal for increased capacity and a Start-up condition to meet 9 ppm NOx due to lower FGR temperature. The proposal with the same scope as the current scope offered on Train 1, OPF PO 101052 (including supplements A&B), Coen SO 9110032 as of 10/29/10, except for the capacity difference. If the scope changes on the current order prior to the Train order being place, Coen will need to review the scope offered and adjust the price of this proposal accordingly. Basic scope is for one (1) Windbox-C-RMB Ultra Low NOx burner package for the one (1) Optimized Process Furnace, Inc. to meet 5 PPM NOx once plant is complete and 9 PPM during Start-up of the plant.

1. INTRODUCTION

One (1) Windbox C-RMB™ Ultra Low NOx burner packages to be supplied and mounted on Optimized Process Furnace, Inc Vertical Upfired heater which will fire natural gas with FGR to meet 5 ppm once the plant is fully on-line During the initial Plant Start-up, the burner package will be able to meet 9 ppm NOx with the lower FGR temperature

Based upon the burner design specification presented in Section 2, a TODD® Brand of product from the Coen Company, Inc. (Coen®) is pleased to offer Optimized Process Furnace, Inc, our pre-engineered, **TODD®** gas ultra low NOx Rapid Mix Burner with windbox, loose FD fan package with inlet and outlet dampers including interconnecting duct piece with expansion joint, FGR inlet box with damper, and loose pneumatic FGR damper, valve trains, miscellaneous field switches, flame scanning equipment,
Coen Fyr-Monitor™ BMS/CCS Allen Bradley CompactLogix PLC panel, gas flow control valve, gas flow meter, air flow meter with transmitter, stack oxygen meter for oxygen trim, FGR flow meter for FGR trim, Oxygen trim and draft controls. The packaged burner is factory pre-assembled to the maximum extent to minimize field installation and easily mounts onto the heater floor plate for vertical up firing.

TODD® C-RMB™ Ultra Low NOx burners, part of the RMB family of burners have been provided commercially since 1994. Total installations RMB and C-RMB exceed 200 to date, which is far greater than any of our competitors. The design of the burner management and control systems is well proven with several years operating experience, and is expressly designed for meeting these ultra low emissions in a safe and reliable manner. Every one of our units has met the ultra low emissions.

Standard low NOx burners offer NOx emissions levels while firing with natural gas that range from 20 ppm to 30 ppm. The C-RMB burner, while firing natural gas, will meet NOx levels less than 5 ppm. This is accomplished through the acceleration of the mixing of fuel and air which will virtually eliminate prompt NOx and also results in the most efficient use of recirculated flue gases (FGR) to reduce thermal NOx emissions.

In order to meet the NOx requirements on gas firing, approximately fifty (54) percent flue gas recirculation, in combination with the TODD ultra low NOx burner, will be required. Flue gas recirculation will be induced into the F. D. fan, premixing with the combustion air upstream of the windbox.

Recognizing that combustion air is 94% of the mass flow through the burner, with fuel only being 6%, as part of the "system" solution for supplying a burner for optimum performance, Coen will provide air flow distribution studies of the windbox and upstream combustion air duct, using our physical modeling capabilities. The model studies determine the size and location of baffles to be provided, in order to assure balanced air flow to the burner, and will result in reduced system draft losses, reduced stack emissions at lower excess oxygen levels, and greater heater efficiency. A drawing will be provided indicating the size and location of baffles, in the windbox.

2. BURNER DESIGN BASIS & SPECIFICATIONS

A. Burner Design Basis

Heater Data	
Manufacturer	OPF Heaters
Type	Vertical Up Fired
Start-up; LHV	49.06 mmbtu/hr
HHV	53.97 mmbtu/hr
Normal/Design Duty; LHV	55.99/61.6 mmbtu/hr
HHV	61.59/67.76 mmbtu/hr
Furnace Dimensions:	
Diameter	15'3"
Length	30'2"
Furnace Operating Pressure including FGR at MCR, Normal/Design	-0.42 /-0.51 in wg
Combustion Air Temperature	80 deg F
Flue Gas Temperature	720 deg F
Mix Temperature, Design	327.8 deg F
Fuel Data	
Fuel Gas	
Type	Natural
High Heat Value	1,000 Btu/scf
Pressure Required at Coen interface	30-40 psig
Sulfur	0.00% by volume
Burner Management System Design	
Insurance Guidelines	NFPA85 for single burner
Type of Operation	Automatic, non-recycling
Individual components	UL listed or FM approved
Panel approval	UL-508
Miscellaneous Data	
Burner Location	Outdoor, Hazardous Class I Div II Group C/D
Plant Elevation	1,350 ft asl
Control Power Supply Available	120V/1Ph/60Hz
Motor Power Supply Available, 250 to 4000 HP	4000V/3Ph/60Hz
Instrument Supply Available	24 volts DC
Valve Train Construction	ANSI-31.3 (gas)
Surface Preparation and Painting	Per Spec; System 1 & 2
Quality Control	Manufacturer standard

B. Burner Specifications

Number of Burners per Heater	One (2 cells)
Gas Firing per Burner	
Heat Input per cell/total, HHV	33.88/67.76 mmbtu/hr
Total Turndown	6 to 1
Pressure at Burner	10 psig
Excess Air at MCR	20%
Recycle Flue Gas Rate at MCR	54%
Draft Loss at MCR	10.0 in wg
Type	TODD C-RMB burner Unison Fired
Combustion Noise measure 3' from windbox	85 dBA

C. Gas Electric Ignitor Specifications

Number of Ignitors per heater	Two (2)
Gas Firing	
Heat Input	500,000 btu/hr
Pressure at Burner	1 psig (approx)
Purge air source	Plant air or instrument air
Purge air flow	8 to 10 scfm
Purge air pressure	8 in wg above windbox pressure
Type	Class 3
Operation	Intermittent

-Socket Welded flanges 2" and below and Weld Neck for 3" and up.
-Nema 4X rated instruments and panel(s)
-Isolated ground bar and equipment ground – two 2-hole threaded grounds pad (1/2" x 13) for Nema 2-hole ground lug shall be attached to the skid base at diametrically opposite corners of the skid
-10% spare I/O for BMS and CCS PLC.
-20% spare space in BMS/CCS panel for future expansion
-20% spare terminals for future needs
-Vortex Cooler for the BMS/CCS panel
-Instrumentation wetted parts to be stainless steel.
-Transmitters to have LCD indication
-Gauges to be 4-1/2"dial
-FCV valve to have a maximum allowed noise level of 85 dBA at 3'.
-Instruments (except pressure/temperature limits) to have root and block & bleed valve arrangement.
-Instrument isolation valve and filter regulator with gauge at each air user.
-PLC and HMI software packages.

4. PERFORMANCE GUARANTEES

A. The following performance guarantees will be extended from twenty-five (25) to one hundred (100) percent of heater load, provided that the system is operated at steady state conditions, in accordance with the Burner Design Basis and Specifications in Section 2:

- Maximum emission levels on natural gas, with all concentrations corrected to 3% oxygen, on a dry basis:

NOx	5 ppm
NOx (Start-up)	9 ppm
CO	400 ppm

- The burners will maintain a stable flame with no deleterious impingement over the entire heater load range
- Start-up performance is based on 273 deg F FGR temperature and 49.6 (LHV) mmbtu/hr at MCR.

B. All performance specifications stated throughout this proposal are intended to show probable operating results only which cannot be guaranteed except as expressly stated in the guarantee clause 4.A). Emission guarantees exclude background emissions present in the ambient air used for combustion.

OPTIMIZED
PROCESS
FURNACES, INC.
3995 S. Santa Fe
P. O. BOX 708 / CHANUTE, KS 66720-0708
PHONE (620) 431-1260
FAX (620) 431-6631

Dickson Process Systems
January 28, 2011

Your Inquiry No. PJ-4714
Our Estimate Only No. 2011-EO-002

HEATER PIECE SIZES & WEIGHTS

ONE (1) VERTICAL HEATER

		WEIGHT
3	Radiant Sections with coil and insulation shop installed: Each: 33'-0" long x 16'-0" wide x 7'-0" high	20,600#/Each
2	Radiant Arch Sections with insulation shop installed: Each: 16'-0" long x 8'-0" wide x 1'-0" high	1,600#/Each
2	Radiant Floor Sections with insulation shop installed: Each: 13'-0" long x 7'-0" wide x 1'-0" high	8,000#/Each
1	Convection Section with coil and insulation shop installed: 16'-0" long x 11'-0" wide x 8'-0" high	37,100#
1	Stack: 7'-0" O.D. x 35'-0" long	7,500#

Miscellaneous pieces shipped in crates.

Burners shipped loose to field.

ATTACHMENT IV
Fugitive Emissions

Fugitive VOC Emissions From Components
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions From Amine Sweetening Unit (Inlet and Contactor)

Type of Component	Component Service	Component Counts	Leak Threshold (ppmv)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day/Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	144	2,000	0.0000	7.392E-04	0.106	0.078
	Light Crude Oil	131	2,000	0.0000	7.392E-04	0.097	0.071
	Heavy Crude Oil	0	2,000	0.0000	4.118E-04	0.000	0.000
Pump Seals	Gas/Light Liquid	0	2,000	0.0000	1.214E-02	0.000	0.000
	Light Crude Oil	4	2,000	0.0000	1.003E-02	0.040	0.029
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	16	2,000	0.0000	2.376E-03	0.038	0.028
	Light Crude Oil	12	2,000	0.0000	3.379E-03	0.041	0.030
	Heavy Crude Oil	0	2,000	0.0000	1.690E-03	0.000	0.000
Connectors	Gas/Light Liquid	203	2,000	0.0000	4.488E-04	0.091	0.067
	Light Crude Oil	186	2,000	0.0000	4.541E-04	0.084	0.062
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	117	2,000	0.0000	1.373E-04	0.016	0.012
	Light Crude Oil	190	2,000	0.0000	8.448E-05	0.016	0.012
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	2,000	0.0000	3.960E-04	0.000	0.000
	Light Crude Oil	0	2,000	0.0000	3.538E-05	0.000	0.000
	Heavy Crude Oil	0	2,000	0.0000	3.168E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components (lb/day)						0.530	0.388

Gas	VOC content (%) of TOG	100.00		GHG Methane content (%) of TOG	73.17
Liquid	VOC content (%) of TOG	100.00		GHG Methane content (%) of TOG	73.17

Fugitive VOC Emissions From Components
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions From Amine Regeneration Unit

Type of Component	Component Service	Component Counts	Leak Threshold (ppmv)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day/Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	46	2,000	0.0000	7.392E-04	0.034	0.028
	Light Crude Oil	194	2,000	0.0000	7.392E-04	0.143	0.117
	Heavy Crude Oil	24	2,000	0.0000	4.118E-04	0.010	0.008
Pump Seals	Gas/Light Liquid	0	2,000	0.0000	1.214E-02	0.000	0.000
	Light Crude Oil	10	2,000	0.0000	1.003E-02	0.100	0.082
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	10	2,000	0.0000	2.376E-03	0.024	0.019
	Light Crude Oil	14	2,000	0.0000	3.379E-03	0.047	0.039
	Heavy Crude Oil	3	2,000	0.0000	1.690E-03	0.005	0.004
Connectors	Gas/Light Liquid	45	2,000	0.0000	4.488E-04	0.020	0.016
	Light Crude Oil	186	2,000	0.0000	4.541E-04	0.084	0.069
	Heavy Crude Oil	60	2,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	50	2,000	0.0000	1.373E-04	0.007	0.006
	Light Crude Oil	225	2,000	0.0000	8.448E-05	0.019	0.016
	Heavy Crude Oil	24	2,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	2,000	0.0000	3.960E-04	0.000	0.000
	Light Crude Oil	0	2,000	0.0000	3.538E-05	0.000	0.000
	Heavy Crude Oil	0	2,000	0.0000	3.168E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components (lb/day)						0.494	0.404

Gas	VOC content (%) of TOG	100.00		Methane content (%) of TOG	81.65
Liquid	VOC content (%) of TOG	100.00		Methane content (%) of TOG	81.65

Fugitive VOC Emissions From Components
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions From Glycol Contactor (Inlet and Contactor)

Type of Component	Component Service	Component Counts	Leak Threshold (ppmV)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day/Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	105	2,000	0.0000	7.392E-04	0.078	0.063
	Light Crude Oil	27	2,000	0.0000	7.392E-04	0.020	0.016
	Heavy Crude Oil	0	2,000	0.0000	4.118E-04	0.000	0.000
Pump Seals	Gas/Light Liquid	0	2,000	0.0000	1.214E-02	0.000	0.000
	Light Crude Oil	0	2,000	0.0000	1.003E-02	0.000	0.000
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	16	2,000	0.0000	2.376E-03	0.038	0.031
	Light Crude Oil	6	2,000	0.0000	3.379E-03	0.020	0.017
	Heavy Crude Oil	0	2,000	0.0000	1.690E-03	0.000	0.000
Connectors	Gas/Light Liquid	95	2,000	0.0000	4.488E-04	0.043	0.035
	Light Crude Oil	104	2,000	0.0000	4.541E-04	0.047	0.039
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	82	2,000	0.0000	1.373E-04	0.011	0.009
	Light Crude Oil	44	2,000	0.0000	8.448E-05	0.004	0.003
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	2,000	0.0000	3.960E-04	0.000	0.000
	Light Crude Oil	0	2,000	0.0000	3.538E-05	0.000	0.000
	Heavy Crude Oil	0	2,000	0.0000	3.168E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components (lb/day)						0.261	0.213

Gas	VOC content (%) of TOG	100.00		Methane content (%) of TOG	81.65
Liquid	VOC content (%) of TOG	100.00		Methane content (%) of TOG	81.65

Fugitive VOC Emissions From Components
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions From Glycol Regeneration Unit

Type of Component	Component Service	Component Counts	Leak Threshold (ppmv)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day/Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	74	2,000	0.0000	7.392E-04	0.055	0.045
	Light Crude Oil	98	2,000	0.0000	7.392E-04	0.072	0.059
	Heavy Crude Oil	0	2,000	0.0000	4.118E-04	0.000	0.000
Pump Seals	Gas/Light Liquid	0	2,000	0.0000	1.214E-02	0.000	0.000
	Light Crude Oil	3	2,000	0.0000	1.003E-02	0.030	0.025
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	20	2,000	0.0000	2.376E-03	0.048	0.039
	Light Crude Oil	12	2,000	0.0000	3.379E-03	0.041	0.033
	Heavy Crude Oil	0	2,000	0.0000	1.690E-03	0.000	0.000
Connectors	Gas/Light Liquid	86	2,000	0.0000	4.488E-04	0.039	0.032
	Light Crude Oil	152	2,000	0.0000	4.541E-04	0.069	0.056
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	87	2,000	0.0000	1.373E-04	0.012	0.010
	Light Crude Oil	80	2,000	0.0000	8.448E-05	0.007	0.006
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	2,000	0.0000	3.960E-04	0.000	0.000
	Light Crude Oil	0	2,000	0.0000	3.538E-05	0.000	0.000
	Heavy Crude Oil	0	2,000	0.0000	3.168E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components (lb/day)						0.372	0.303

Gas	VOC content (%) of TOG	100.00		Methane content (%) of TOG	81.65
Liquid	VOC content (%) of TOG	100.00		Methane content (%) of TOG	81.65

Fugitive VOC Emissions From Components
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions Tank Vapor Recovery System

Type of Component	Component Service	Component Counts	Leak Threshold (ppmv)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day/Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	12	2,000	0.0000	7.392E-04	0.009	0.005
	Light Crude Oil	12	2,000	0.0000	7.392E-04	0.009	0.005
	Heavy Crude Oil	0	2,000	0.0000	4.118E-04	0.000	0.000
Pump Seals	Gas/Light Liquid	0	2,000	0.0000	1.214E-02	0.000	0.000
	Light Crude Oil	3	2,000	0.0000	1.003E-02	0.030	0.018
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	5	2,000	0.0000	2.376E-03	0.012	0.007
	Light Crude Oil	5	2,000	0.0000	3.379E-03	0.017	0.010
	Heavy Crude Oil	0	2,000	0.0000	1.690E-03	0.000	0.000
Connectors	Gas/Light Liquid	24	2,000	0.0000	4.488E-04	0.011	0.006
	Light Crude Oil	24	2,000	0.0000	4.541E-04	0.011	0.007
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	10	2,000	0.0000	1.373E-04	0.001	0.001
	Light Crude Oil	10	2,000	0.0000	8.448E-05	0.001	0.001
	Heavy Crude Oil	0	2,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	2,000	0.0000	3.960E-04	0.000	0.000
	Light Crude Oil	0	2,000	0.0000	3.538E-05	0.000	0.000
	Heavy Crude Oil	0	2,000	0.0000	3.168E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components, (lb/day)						0.1005	0.060

Gas	VOC content (%) of TOG	100.00		Methane content (%) of TOG	60.00
Liquid	VOC content (%) of TOG	100.00		Methane content (%) of TOG	60.00

Fugitive VOC Emissions From Components ,
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions Closed Drain System Tank

Type of Component	Component Service	Component Counts	Leak Threshold (ppmv)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	12	10,000	0.0000	1.320E-03	0.016	0.010
	Light Crude Oil	12	10,000	0.0000	1.003E-03	0.012	0.007
	Heavy Crude Oil	0	10,000	0.0000	4.435E-04	0.000	0.000
Pump Seals	Gas/Light Liquid	0	10,000	0.0000	1.848E-02	0.000	0.000
	Light Crude Oil	3	10,000	0.0000	2.693E-02	0.081	0.048
	Heavy Crude Oil	0	10,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	3	10,000	0.0000	6.336E-03	0.019	0.011
	Light Crude Oil	3	10,000	0.0000	7.392E-03	0.022	0.013
	Heavy Crude Oil	0	10,000	0.0000	1.848E-01	0.000	0.000
Connectors	Gas/Light Liquid	24	10,000	0.0000	5.280E-04	0.013	0.008
	Light Crude Oil	24	10,000	0.0000	5.122E-04	0.012	0.007
	Heavy Crude Oil	0	10,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	10	10,000	0.0000	3.010E-04	0.003	0.002
	Light Crude Oil	10	10,000	0.0000	1.267E-04	0.001	0.001
	Heavy Crude Oil	0	10,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	10,000	0.0000	7.920E-04	0.000	0.000
	Light Crude Oil	0	10,000	0.0000	7.392E-04	0.000	0.000
	Heavy Crude Oil	0	10,000	0.0000	3.802E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components (lb/day)						0.179	0.107

Gas	VOC content (%) of TOG	100.00		Methane content (%) of TOG	60.00
Liquid	VOC content (%) of TOG	100.00		Methane content (%) of TOG	60.00

Fugitive VOC Emissions From Components
Calculated From Component Counts and EPA ALR Emission Factors

Fugitive Emissions Open Drain System Tank

Type of Component	Component Service	Component Counts	Leak Threshold (ppmv)	Leak Fraction	EPA 1995 ALR TOG Factor lb/day/Component	Fugitive Emissions VOC (lb/Day)	Fugitive Emissions Methane (lb/Day)
Valves	Gas/Light Liquid	12	10,000	0.0000	1.320E-03	0.016	0.010
	Light Crude Oil	12	10,000	0.0000	1.003E-03	0.012	0.007
	Heavy Crude Oil	0	10,000	0.0000	4.435E-04	0.000	0.000
Pump Seals	Gas/Light Liquid	0	10,000	0.0000	1.848E-02	0.000	0.000
	Light Crude Oil	3	10,000	0.0000	2.693E-02	0.081	0.048
	Heavy Crude Oil	0	10,000	0.0000	0.000E+00	0.000	0.000
Others	Gas/Light Liquid	3	10,000	0.0000	6.336E-03	0.019	0.011
	Light Crude Oil	3	10,000	0.0000	7.392E-03	0.022	0.013
	Heavy Crude Oil	0	10,000	0.0000	1.848E-01	0.000	0.000
Connectors	Gas/Light Liquid	24	10,000	0.0000	5.280E-04	0.013	0.008
	Light Crude Oil	24	10,000	0.0000	5.122E-04	0.012	0.007
	Heavy Crude Oil	0	10,000	0.0000	0.000E+00	0.000	0.000
Flanges	Gas/Light Liquid	10	10,000	0.0000	3.010E-04	0.003	0.002
	Light Crude Oil	10	10,000	0.0000	1.267E-04	0.001	0.001
	Heavy Crude Oil	0	10,000	0.0000	0.000E+00	0.000	0.000
Open-ended Lines	Gas/Light Liquid	0	10,000	0.0000	7.920E-04	0.000	0.000
	Light Crude Oil	0	10,000	0.0000	7.392E-04	0.000	0.000
	Heavy Crude Oil	0	10,000	0.0000	3.802E-04	0.000	0.000
Total Fugitive VOC Emissions From Associated Components (lb/day)						0.179	0.107

Gas	VOC content (%) of TOG	100.00		Methane content (%) of TOG	60.00
Liquid	VOC content (%) of TOG	100.00		Methane content (%) of TOG	60.00

ATTACHMENT V
Uncontrolled Tank Emissions

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	14Z Gas Treating Unit
City:	Bakersfield
State:	California
Company:	
Type of Tank:	Horizontal Tank
Description:	14Z Gas Treating Unit

Tank Dimensions

Shell Length (ft):		12.00
Diameter (ft):		5.30
Volume (gallons):		2,000.00
Turnovers:		52.00
Net Throughput(gal/yr):		104,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

14Z Gas Treating Unit - Horizontal Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Crude Oil (RVP 1.5)	Jan	58.62	54.46	62.78	65.42	0.5324	0.4780	0.5907	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Feb	61.49	58.39	66.58	65.42	0.5720	0.5032	0.6488	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Mar	63.85	57.94	69.77	65.42	0.6066	0.5233	0.7008	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Apr	66.98	60.01	73.95	65.42	0.6550	0.5513	0.7746	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	May	71.00	63.30	78.70	65.42	0.7219	0.5983	0.8664	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Jun	74.47	66.32	82.63	65.42	0.7844	0.6446	0.9490	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Jul	77.01	68.80	85.22	65.42	0.8329	0.6847	1.0072	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Aug	76.03	68.25	83.81	65.42	0.8138	0.6756	0.9752	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Sep	72.98	65.93	79.98	65.42	0.7566	0.6384	0.8927	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Oct	68.33	62.00	74.66	65.42	0.6768	0.5783	0.7878	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Nov	62.38	57.33	67.44	65.42	0.5849	0.5153	0.6824	50.0000			207.00	Option 4: RVP=1.5
Crude Oil (RVP 1.5)	Dec	58.39	54.32	62.46	65.42	0.5293	0.4772	0.5680	50.0000			207.00	Option 4: RVP=1.5

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

14Z Gas Treating Unit - Horizontal Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.8337	1.0113	1.3957	1.7380	2.2012	2.4605	2.7223	2.5122	2.0265	1.6740	1.0991	0.8087
Vapor Space Volume (cu ft):	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255
Vapor Density (lb/cu ft):	0.0048	0.0051	0.0054	0.0058	0.0063	0.0068	0.0072	0.0071	0.0066	0.0060	0.0052	0.0048
Vapor Space Expansion Factor:	0.0358	0.0452	0.0537	0.0647	0.0732	0.0789	0.0804	0.0757	0.0670	0.0587	0.0450	0.0349
Vented Vapor Saturation Factor:	0.9304	0.9256	0.9215	0.9158	0.9079	0.9008	0.8953	0.8974	0.9039	0.9132	0.9241	0.9308
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255	168.6255
Tank Diameter (ft):	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000
Effective Diameter (ft):	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011	9.0011
Vapor Space Outage (ft):	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500
Tank Shell Length (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Vapor Density												
Vapor Density (lb/cu ft):	0.0048	0.0051	0.0054	0.0058	0.0063	0.0068	0.0072	0.0071	0.0066	0.0060	0.0052	0.0048
Vapor Molecular Weight (lb/lb-mole):	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.5324	0.5720	0.6066	0.6550	0.7219	0.7844	0.8329	0.8138	0.7566	0.6768	0.5849	0.5293
Daily Avg. Liquid Surface Temp. (deg. R):	518.2822	521.1571	523.5218	526.6478	530.6689	534.1445	536.6832	535.7010	532.6258	527.9968	522.0547	518.0564
Daily Average Ambient Temp. (deg. F):	47.7500	53.2500	57.3500	63.0000	70.9500	78.2000	84.0500	82.5500	76.8000	67.7500	55.7500	47.4000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	727.5001	1,058.7300	1,476.2573	1,952.7969	2,340.8161	2,554.9753	2,526.6419	2,288.7858	1,882.8802	1,401.0843	908.0267	666.5843
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0358	0.0452	0.0537	0.0647	0.0732	0.0789	0.0804	0.0757	0.0670	0.0587	0.0450	0.0349
Daily Vapor Temperature Range (deg. R):	18.6389	20.3756	23.6590	27.8713	30.7883	32.6087	32.8443	31.1266	28.1136	25.3171	20.2342	16.2789
Daily Vapor Pressure Range (psia):	0.1117	0.1454	0.1778	0.2233	0.2680	0.3045	0.3226	0.2997	0.2544	0.2085	0.1472	0.1087
Breather Vent Press. Setting Range(psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.5324	0.5720	0.6066	0.6550	0.7219	0.7844	0.8329	0.8138	0.7566	0.6768	0.5849	0.5293
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.4790	0.5032	0.5233	0.5513	0.5983	0.6446	0.6847	0.6756	0.6384	0.5793	0.5153	0.4772
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.5907	0.6486	0.7008	0.7746	0.8664	0.9490	1.0072	0.9752	0.8927	0.7878	0.6624	0.5860
Daily Avg. Liquid Surface Temp. (deg R):	518.2822	521.1571	523.5218	526.6478	530.6689	534.1445	536.6832	535.7010	532.6258	527.9968	522.0547	518.0564
Daily Min. Liquid Surface Temp. (deg R):	514.1325	516.0632	517.6071	519.6800	522.9873	526.9921	528.4721	527.9194	525.5973	521.6878	516.9961	513.9872
Daily Max. Liquid Surface Temp. (deg R):	522.4520	526.2510	529.4366	533.6156	538.3685	542.2970	544.8942	543.4827	539.6540	534.3261	527.1132	522.1257
Daily Ambient Temp. Range (deg. R):	18.3000	21.3000	23.1000	25.8000	27.3000	28.4000	28.9000	28.1000	26.6000	25.9000	22.1000	18.2000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9304	0.9256	0.9215	0.9158	0.9079	0.9008	0.8953	0.8974	0.9039	0.9132	0.9241	0.9308
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.5324	0.5720	0.6066	0.6550	0.7219	0.7844	0.8329	0.8138	0.7566	0.6768	0.5849	0.5293
Vapor Space Outage (ft):	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500	2.6500
Working Losses (lb):	3.0634	3.2914	3.4903	3.7667	4.1539	4.5135	4.7923	4.6828	4.3534	3.8944	3.3658	3.0453
Vapor Molecular Weight (lb/lb-mole):	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.5324	0.5720	0.6066	0.6550	0.7219	0.7844	0.8329	0.8138	0.7566	0.6768	0.5849	0.5293
Net Throughput (gal/mo.):	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667	8,666.6667
Annual Turnovers:	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000	52.0000
Turnover Factor:	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436	0.7436
Tank Diameter (ft):	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000	5.3000
Working Loss Product Factor:	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500

Total Losses (lb):	3.8972	4.3027	4.8860	5.5067	6.3551	6.9740	7.5147	7.1950	6.3799	5.5684	4.4649	3.8540

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

14Z Gas Treating Unit - Horizontal Tank
Bakersfield, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude Oil (RVP 1.5)	46.42	20.48	66.90

ATTACHMENT VI
Emissions Profiles

Application Emissions

Permit #: S-2234-245-0	**Last Updated**
Facility: OCCIDENTAL OF ELK HILLS INC	01/22/2012 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	374.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	1.0
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	93.0
Q2:	0.0	0.0	0.0	0.0	93.0
Q3:	0.0	0.0		0.0	94.0
Q4:	0.0	0.0	0.0	0.0	94.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:					140.0
Q2:					140.0
Q3:					140.0
Q4:					140.0

Permit #: S-2234-246-0	**Last Updated**
Facility: OCCIDENTAL OF ELK HILLS INC	01/22/2012 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	231.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	0.6
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	57.0
Q2:	0.0	0.0	0.0	0.0	58.0
Q3:	0.0	0.0	0.0	0.0	58.0
Q4:	0.0	0.0	0.0	0.0	58.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:					87.0
Q2:					87.0
Q3:					87.0
Q4:					87.0

Permit #: S-2234-247-0	**Last Updated**
Facility: OCCIDENTAL OF ELK HILLS INC	01/22/2012 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5063.0	1602.0	4527.0	21981.0	3217.0
Daily Emis. Limit (lb/Day)	13.9	4.4	12.4	60.2	8.8
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1265.0	400.0	1131.0	5495.0	804.0
Q2:	1266.0	400.0	1132.0	5495.0	804.0
Q3:	1266.0	401.0	1132.0	5495.0	804.0
Q4:	1266.0	401.0	1132.0	5496.0	805.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5	1.3	1.3		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1899.0	521.0	1471.0		1433.0
Q2:	1899.0	521.0	1471.0		1433.0
Q3:	1899.0	521.0	1471.0		1433.0
Q4:	1899.0	521.0	1471.0		1433.0

Application Emissions

Permit #: S-2234-248-0	**Last Updated**
Facility: OCCIDENTAL OF ELK HILLS INC	01/22/2012 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	102.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	0.3
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	25.0
Q2:	0.0	0.0	0.0	0.0	25.0
Q3:	0.0	0.0	0.0	0.0	26.0
Q4:	0.0	0.0	0.0	0.0	26.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: S-2234-249-0	**Last Updated**	
Facility: OCCIDENTAL OF ELK HILLS INC	01/22/2012	EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	132.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	0.4
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	33.0
Q2:	0.0	0.0	0.0	0.0	33.0
Q3:	0.0	0.0	0.0	0.0	33.0
Q4:	0.0	0.0	0.0	0.0	33.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

ATTACHMENT VII
BACT Guidelines

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.2.1*

Last Update: 3/11/2005

Steam Generator (> or = 5 MMBtu/hr, Oil Field)

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Gaseous fuel		
NOx	14 ppmvd @ 3% O2	7 ppmvd @ 3% O2 with SCR 9 ppmvd @ 3% O2	
SOx	Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2		
PM10	Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2		
CO	50 ppmvd @ 3% O2		

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 requried 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)**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.2.7*

Last Update: 11/27/2006

Natural Gas Processing Plant - Valves, Connectors, and Compressor and Pump Seals (Subject to Rule 4403) < or = 100 Million SCF/Day

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC or as a reading of methane, in excess of 10,000 ppmv above background when measured per EPA Method 21, for all components, and an Inspection and Maintenance Program pursuant to District Rule 4409.	1. Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC or as a reading of methane, in excess of • 100 ppmv above background (for Valves and Connectors) and • 500 ppmv (for Compressor and Pump Seals) when measured per EPA Method 21 from the potential source, and an Inspection and Maintenance Program pursuant to District Rule 4409. 2. Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC or as a reading of methane, in excess of 5,000 ppmv above background when measured EPA Method 21, for all components, and an Inspection and Maintenance Program pursuant to District Rule 4409.	

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 requried 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)**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.2.7 A

Emissions Unit: Gas Processing Plant - Valves, Connectors, and Compressor and Pump Seals subject to Rule 4403
Facility: AERA Energy LLC

Equipment Rating: 85 million SCF/day

References: ATC #: S-1543-4-8
Project #: S-1001355

Location: Belgrade Gas Plant

Date of Determination: 6/25/2001

Pollutant	BACT Requirements
CO	BACT NOT TRIGGERED
NOx	BACT NOT TRIGGERED
PM10	BACT NOT TRIGGERED
SOx	BACT NOT TRIGGERED
VOC	Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC or as a reading of methane, in excess of 100 ppmv above background (for Valves and Connectors) and 500 ppmv (for Compressor and Pump Seals) when measured at a distance of one (1) cm from the potential source, and an Inspection and Maintenance Program pursuant to District Rule 4403.

BACT Status:

- ☐ Small Emitter
- ☐ T-BACT
- ☐ Achieved in Practice
- ☑ Technologically feasible BACT
- ☐ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
- ☐ Contained in EPA approved SIP
- ☐ The following technologically feasible options were not cost effective:
- ☐ Alternate Basic Equipment
- ☐ The following alternate basic equipment was not cost effective:

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.3.1*

Last Update: 10/1/2002

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

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

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

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

ATTACHMENT VIII
BACT Analysis

S2234-247

Top Down BACT Analysis for NOx Emissions:

Step 1 - Identify All Possible Control Technologies

The District adopted District Rule 4320 on October 16, 2008. The NO_X emission limit requirements in District Rule 4320 are lower than the current BACT limits; therefore a project specific BACT analysis will be performed to determine BACT for this project. District Rule 4320 includes a compliance option that limits units greater than 20 MMBtu/hr to 7 ppm @ 3% O_2. This emission limit is Achieved in Practice control technology for the BACT analysis. District Rule 4320 also contains an enhanced schedule option that allows applicants additional time to meet the requirements of the rule. The enhanced schedule NO_X emission limit requirement is 5 ppmv @ 3% O_2. Since this is an enhanced option in the rule, it will be considered the Technologically Feasible control technology for the BACT analysis.

The following are possible control technologies:

7 ppmvd @ 3% O2 - Achieved in Practice.
5 ppmvd @ 3% O2 with SCR – Technologically Feasible

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

7 ppmvd @ 3% O2 - Achieved in Practice.
5 ppmvd @ 3% O2 with SCR – Technologically Feasible

SCR Cost Effectiveness Analysis

Assumptions:

Industry standard (IS) assumed to be a NOX emission rate of 15 ppmv @ 3% O2 in accordance with District Rule 4306.

Unit's maximum emissions are defined by the burner size multiplied by the emissions factor and a maximum annual operating schedule of 8,760 hr/year.

Calculations:

Industrial Standard NOX Emissions = 68 MMBtu/hr x 0.018 lb/MMBtu x 8760 hrs/year
= 10,722 lb/year

Tech. Feasible NOX Emissions = 68 MMBtu/hr x 0.006 lb/MMBtu x 8760 hrs/year
= 3,574 lb/year

Selective Catalytic Reduction system (Detailed costs follow the BACT Analysis Section):

Capital Cost (PCL): $745,000 (includes all purchased equipment, taxes, freight, and installation of SCR for an 85 MMBtu/hr unit) – detailed costs follow.

Total Estimated Capital Cost: $745,000 (PCL, Berry project S1246, 1111510, 85 MMBtu/hr unit)

Use "6/10s Rule"

$\$745,000 \times (68/85)^{0.6} = \$651,644$

Equivalent Annual Capital Cost (Capital Recovery)

$$A = P \frac{i(1+i)n}{(1+i)n - 1} \quad \text{where;}$$

A = Equivalent Annual Control Equipment Capital Cost
P = Present value of the control equipment, including installation cost
i = interest rate (use 10%, or demonstrate why alternate is more representative of the specific operation).
n = equipment life (assume 10 years or demonstrate why alternate is more representative of the specific operation)
Where

P = $651,644
i = 10%,
n = 10 years

A = $106,022

The annual operating cost is estimated to be $125,000/yr

Total annualized cost = $106,022/yr + $125,000/yr
= $231,022

NOx Reduction due to Selective Catalytic Reduction system:

Total reduction = Emissions15 ppm – Emissions5 ppm
Total reduction = 10,722 lb/year– 3,574 lb/year
Total reduction = 7,148 lb/year = 3.6 ton NOX per year

Cost effectiveness:

Cost effectiveness = $231,022/ 3.6 tpy
Cost effectiveness = $64,173/ ton

The cost effectiveness is greater than the $24,500/ton cost effectiveness threshold of the District BACT policy. Therefore the use of SCR with ammonia injection is not cost effective and is not required as BACT.

e. Step 5 - Select BACT

BACT for NOX emissions is a NO_X limit of 7 ppmvd @ 3% O2; therefore BACT for NOX emissions is satisfied.

❖ **Top Down BACT Analysis for VOC Emissions:**

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2008, identifies achieved in practice and technologically feasible BACT for Steam Generator ≥ 5 MMbtu/hr, at an oil field as follows:

Gaseous fuel - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Gaseous fuel - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for VOC

The use of gaseous fuel (natural gas) is selected as BACT for VOC emissions.

❖ **Top Down BACT Analysis for PM_{10} and SOx Emissions:**

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2007, identifies achieved in practice and technologically feasible BACT for Steam Generator ≥ 5 MMbtu/hr, at an oil field as follows:

Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2 - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2 - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for SOx and PM10

The use of natural gas as a primary fuel with a sulfur content not to exceed 1.0 gr-S/100 scf is selected as BACT for SOx and PM_{10} emissions.

❖ **Top Down BACT Analysis for CO Emissions:**

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2008, identifies achieved in practice and technologically feasible BACT for Steam Generator $\geq$ 5 MMbtu/hr, at an oil field as follows:

50 ppmv @ 3% O2 Achieved-in-Practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

50 ppmv @ 3% O2 Achieved-in-Practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for CO

50 ppmv @ 3% O2 Achieved-in-Practice

ATTACHMENT IX
HRA/AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Richard Edgehill – Permit Services
From:	Ester Davila – Technical Services
Date:	January 18, 2012
Facility Name:	Occidental of Elk Hills
Location:	Gas Plant Stationary Source (Sec. 14, T30S, R22E)
Application #(s):	S-2234-245-0 through 248-0
Project #:	S-1114442

A. RMR SUMMARY

RMR Summary						
Categories	Amine Txt & Glycol Dehy Sys Fugitives (245-0 & 246-0)	Hot Oil Heater (Unit 247-0)	Closed Drain Tank (Unit 248-0)	Open Drain Tank (Unit 249-0)	Project Totals	Facility Totals
Prioritization Score	0.00	0.00	0.00	0.00	>1.0	>1.0
Acute Hazard Index	0.00	0.00	0.00	0.00	0.00	0.09
Chronic Hazard Index	0.00	0.00	0.00	0.00	0.00	0.03
Maximum Individual Cancer Risk (10^{-6})	0.00532	0.000315	0.00211	0.00266	0.0104	2.44
T-BACT Required?	No	No	No	No		
Special Permit Conditions?	No	Yes	No	No		

Proposed Permit Conditions

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

Unit # 247-0

1. 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]

B. RMR REPORT

I. Project Description

Technical Services received a request on December 27, 2011, to perform an Ambient Air Quality Analysis and a Risk Management Review for a new gas treating system consisting of the following units:

1) One Amine Treating System (Unit 245-0)
2) One Glycol Dehydration System (Unit 246-0)
3) One 68 MMBtu/hr NG-fired Hot Oil Heater (Unit 247-0)
4) One 2000 gal Closed Drain Tank with vapor recovery (Unit 248-0)
5) One Open Drain Tank with PV/vent (Unit 249-0)

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Since the total facility prioritization score was greater than one, a refined health risk assessment was required. Emissions calculated using data submitted by the engineer and applicant were input into the HEARTs database. The AERMOD model was used, with the parameters outlined below and the MM5 meteorological data for 2004-2008 from the Missouri Triangle site to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the Hot Spots Analysis and Reporting Program (HARP) risk assessment module to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Units 245-0 & 246-0 (Amine Trt & Glycol Dehy. Systems)			
Source Type	Area	**Location Type**	Rural
Release Height (m)	1	**Closest Receptor (m)**	4361
Length of X Side (m)	96	**Type of Receptor**	Residential/ Business
Length of Y Side (m)	23	**Max Hours per Year**	8760
Orientation Angle from North (°)	315	**Emission Rate (g/sec-m^2)**	0.000453

Analysis Parameters Unit 247-0 (Hot Oil Heater)			
Source Type	Point	**Location Type**	Rural
Stack Height (m)	23	**Closest Receptor (m)**	4361
Stack Diameter. (m)	1.524	**Type of Receptor**	Residential/ Business
Stack Exit Velocity (m/s)	4.3	**Max Hours per Year**	8760
Stack Exit Temp. (°K)	422	**Fuel Type**	NG
Burner Rating (MMBtu/hr)	68		

Analysis Parameters - Each Units 248-0 & 249-0 (Open & Closed Drain Tanks)			
Source Type	Circular Area	**Location Type**	Rural
Radius of Circular Area (m)	0.808	**Closest Receptor (m)**	4361
Release Height (m)	3.658	**Type of Receptor**	Residential/ Business
No. Vertices or Sides	20	**Pollutant Type**	VOC
		Emission Rate (g/sec-m^2)	0.5

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx and PM_{10}. The emission rates used for criteria pollutant modeling were as follows:

Emission Rates (lb/hr)				
Pollutant	Units 245-0 & 246-0 (Amine & Glycol Systems)	Unit 247-0 (Hot Oil Heater)	Unit 248-0 (Tank)	Unit 249-0 (Tank)
CO		2.51		
NOx		0.58		
SOx		0.19		
$PM_{10/2.5}$		0.52		

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass[1]	X	Pass[1]	X	X
NO_x	Pass[2]	X	X	X	Pass[1]
SO_x	Pass[1]	Pass[1]	X	Pass[1]	Pass[1]
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. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the new gas treating system is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

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

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

Attachments:

A. RMR Request
B. Additional Information
C. Toxic Emissions Summary
D. Prioritization Score
E. HARP Reports
F. AAQA Summary
G. Facility Summary

ATTACHMENT X
Statewide and Title V Compliance Certification Forms

OCCIDENTAL OF ELK HILLS, INC.
10800 Stockdale Highway, Bakersfield, CA 93311
Telephone 661 412-5000

December 1, 2011

Mr. Leonard Scandura
Permit Services Manager
San Joaquin Valley
Air Pollution Control District-Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725

Subject: Occidental of Elk Hills, Inc. Certification of Compliance

Dear Mr. Scandura:

Rule 2201 section 4.15.2 requires that an owner or operator proposing a federal major modification certify that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California are either in compliance or on a schedule for compliance with all applicable emission limitations and standards. This letter certifies compliance for Occidental of Elk Hills, Inc. (OEHI) and its affiliates.

OEHI is an ownership partner with Chevron USA for the Elk Hills Unit, which OEHI operates. OEHI has Notices of Violation outstanding. However, all issues associated with the Notices of Violation have been addressed, and OEHI is otherwise operating in compliance with the local, State, and federal laws, orders, regulations, and standards.

Affiliated companies of OEHI own and/or operate other major stationary sources in California. These major stationary sources are currently in compliance with applicable compliance schedules (if any) and are designed and operated to comply with all applicable laws and regulations.

This certification is made on information and belief and is based upon a review of OEHI and affiliated company major stationary sources in the State of California by employees of OEHI and its affiliates who have responsibility for compliance with environmental requirements. This certification is as of the date of its execution.

Sincerely,

Shawn Kerns
President and General Manager

cc: Lynne Carrithers, OEHI
Mike Glavin, OEHI

RECEIVED
NOV - 3 2011
SJVAPCD
Southern Region

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION – COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

[√] SIGNIFICANT PERMIT MODIFICATION [ ] ADMINISTRATIVE MODIFICATION
[ ] MINOR PERMIT MODIFICATION

COMPANY NAME:	Occidental of Elk Hills, Inc.	**FACILITY ID: S-2234**
1. Type of Organization:	[√] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name:	Occidental of Elk Hills, Inc.	
3. Agent to the Owner:	Shawn Kerns, President and General Manager	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial **all** circles for confirmation):

MG Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s).

MG Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

MG Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

MG Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

[signature] 11-02-11

Signature of Responsible Official Date

Mike Glavin

Name of Responsible Official

Environmental Team Lead

Title of Responsible Official

ATTACHMENT XI
Spreadsheets for GHG Calculations

Appendix-B

Spreadsheets for Calculating
Greenhouse Gas Emissions from Business as Usual Case

Process Information For Calculating
GHG Emissions Caused By Flaring of Waste Gas (BAU Case)

Component	MW	HHV	Gas to Injection Compressor (Lb/Hr)			Molar Composition		Btu/SCF	Waste Gas
	Lb/Mole	Btu/Scf	Flash Gas	Acid Gas	Total Gas	Lb*Mole/Hr	Mole %	Waste Gas	CO2 Lb/Hr
N2	28.020	0.0	1.880	0.090	1.970	0.070	0.026	0.00	0.00
CO2	44.010	0.0	3.500	10,973.580	10,977.080	249.422	90.763	0.00	10,977.08
C1	16.042	1,010.0	318.520	29.330	347.850	21.684	7.891	79.69	937.46
C2	30.026	1,769.7	43.960	3.910	47.870	1.594	0.580	10.27	137.61
C3	44.038	2,516.2	21.740	1.610	23.350	0.530	0.193	4.85	68.65
iC4	58.050	3,252.0	0.530	0.003	0.533	0.009	0.003	0.11	1.59
nC4	58.050	3,262.4	0.890	0.010	0.900	0.016	0.006	0.18	2.68
iC5	72.062	4,000.9	0.570	0.010	0.580	0.008	0.003	0.12	2.02
nC5	72.062	4,008.7	0.502	0.010	0.512	0.007	0.003	0.10	1.78
C6+	86.074	4,756.0	3.690	0.720	4.410	0.051	0.019	0.89	13.27
H2O	18.002	0.0	13.570	11.875	25.445	1.413	0.514	0.00	0.00
Total (Lb/Hr)			409.352	11,021.148	11,430.500	274.805	100.000	96.22	12,142.121

Supplemental Fuel
Required for Flaring Waste Gas (BAU Case)

Supplemental Fuel Reqired for Flaring Waste Gas	Value	Units	Value	Units
Supplemental fuel for combusting waste gas (Scf Methane per SCF Waste Gas)	0.792	Ratio	500	Btu/Scf
Total Volume of Waste Gas to be Flared Daily (SDCF Wast Gas/Day)	2,490,710	Scf/Day	239.65	MMBtu/Day
Total Volume of Supplemental Fuel (SDCF Methane/Day)	1,971,975	Scf/Day	1,991.69	MMBtu/Day
Total Volume of Gas Flared Daily (SDCF to Flare, 500 Btu/Scf)	4,462,685	Scf/Day	2,231.34	MMBtu/Day

Annual GHG Emissions
From Flaring of Waste Gas (BAU Case)

Incremental GHG Emissions	Annual Heat Input MMBtu/Year	Carbon Dioxide			Methane Combustion Tonne/Year	Nitrous Oxide Combustion Tonne/Year	Total GHG CO2e Tonne/Year
		Pass Through Tonne/Year	Combustion Tonne/Year	Total CO2 Tonne/Year			
Emissions From Flaring Waste Gas	87,471.56	43,617.54	4,629.30	48,246.84	27.64	0.01	48,830.07
Emissions From Supplemental Fuel	726,968.48	--------	38,434.82	38,434.82	0.65	0.07	38,471.10
Total GHG Emissions Waste Gas Flare	814,440.05	43,617.54	43,064.12	86,681.66	28.30	0.08	87,301.17

Notes:

1. Emissions of CO2 from flaring of waste gas stream were calculated for each compound assuming a 98% destruction efficicncy for the flare Methane emissions from wast gas flater were equal to 2% of total methane contained in the waste gas stream (i.e 98% flare efficicncy).

2. Emissions of GHG from Supplemental Fule use and the N2O emissions from wast gas flaring were calculated using emission factors from the CARB "Regulatory Guidelines for the Mandatory Reporting of Green House Gas Emissions, Appendix-A".

CARB GHG Emissions Factors for Natural Gas Combustion

GHG Emission	CO2	CH4	N2O	CO2e	From Appendix-A for of the CARB Guidelines
Factors For	Kg/MMBtu	Kg/MMBtu	Kg/MMBtu	Kg/MMBtu	for Natural Gas Having a HHV between
Natural Gas	52.870000	0.000900	0.000100	52.919900	between 1000 to 1025 Btu/Scf

ATTACHMENT XII
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-2234-245-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: OCCIDENTAL OF ELK HILLS INC
MAILING ADDRESS: 10800 STOCKDALE HIGHWAY
BAKERSFIELD, CA 93311

LOCATION: GAS PLANT
SECTION SE-35, T-30S, R-23E
TUPMAN, CA

SECTION: SE 14 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
AMINE TREATING SYSTEM WITH AMINE CONTACTOR; AMINE REGENERATION SYSTEM WITH RE-BOILER HEATED BY HOT OIL SYSTEM; WITH FLASH VESSEL AND AMINE REGENERATION OVERHEAD VAPORS ROUTED TO PROCESS SYSTEM INCLUDING OTHER MISCELLANEOUS EQUIPMENT SUCH AS FILTERS, HEAT EXCHANGERS, PUMPS AND VESSELS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. 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 NSR Rule] Federally Enforceable Through Title V Permit
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

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

DRAFT

DAVID WARNER, Director of Permit Services
S-2234-245-0 : Mar 5 2012 9:07AM – EDGEHILR : Joint Inspection Required with EDGEHILR

7. Permittee shall maintain with the permit accurate fugitive component counts and resulting emissions calculated using (ALR) equations for a 2,000 ppmv leak threshold included in EPA, "Protocol for Estimating Leak Emissions" (EPA - 453/R-95-017, November 1995). [District Rule 2201] Federally Enforceable Through Title V Permit

8. A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 2,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rule 2201] Federally Enforceable Through Title V Permit

9. VOC fugitive emissions shall not exceed 1.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

10. 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] Federally Enforceable Through Title V Permit

11. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: VOC: 140 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit

12. ERC Certificate Numbers S-3615-1 (or certificates split from theses certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-2234-246-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: OCCIDENTAL OF ELK HILLS INC
MAILING ADDRESS: 10800 STOCKDALE HIGHWAY
BAKERSFIELD, CA 93311

LOCATION: GAS PLANT
SECTION SE-35, T-30S, R-23E
TUPMAN, CA

SECTION: SE 14 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
ELECTRICALLY HEATED GLYCOL DEHYDRATION UNIT WITH VAPORS FROM FLASH VESSEL AND STILL VENT ROUTED TO PROCESS SYSTEM INCLUDING OTHER MISCELLANEOUS EQUIPMENT SUCH AS FILTERS, HEAT EXCHANGERS, PUMPS AND VESSELS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. 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 NSR Rule] Federally Enforceable Through Title V Permit
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

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

DRAFT

DAVID WARNER, Director of Permit Services
S-2234-246-0 : Mar 5 2012 9:08AM – EDGEHILR : Joint Inspection Required with EDGEHILR

7. Permittee shall maintain with the permit accurate fugitive component counts and resulting emissions calculated using (ALR) equations for a 2,000 ppmv leak threshold included in EPA, "Protocol for Estimating Leak Emissions" (EPA - 453/R-95-017, November 1995). [District Rule 2201] Federally Enforceable Through Title V Permit

8. A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 2,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rule 2201] Federally Enforceable Through Title V Permit

9. VOC fugitive emissions shall not exceed 0.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

10. 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] Federally Enforceable Through Title V Permit

11. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: VOC: 87 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit

12. ERC Certificate Numbers S-3615-1 (or certificates split from theses certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-2234-247-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: OCCIDENTAL OF ELK HILLS INC
MAILING ADDRESS: 10800 STOCKDALE HIGHWAY
BAKERSFIELD, CA 93311

LOCATION: GAS PLANT
SECTION SE-35, T-30S, R-23E
TUPMAN, CA

SECTION: SE 14 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
68 MMBTU/HR VERTICALLY ORIENTED PROCESS HEATER (HOT OIL HEATER) EQUIPPED WITH COEN RMB ULTRA LOW NOX BURNER (OR EQUIVALENT EMISSION UNIT)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

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

DRAFT

DAVID WARNER, Director of Permit Services
S-2234-247-0 : Feb 9 2012 9:16AM – EDGEHILR : Joint Inspection Required with EDGEHILR

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. 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 NSR Rule] Federally Enforceable Through Title V Permit
8. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102] Federally Enforceable Through Title V Permit
9. 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] Federally Enforceable Through Title V Permit
10. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
11. Hot oil heater shall only be fired on natural gas with a sulfur content not exceeding 1.0 gr S/100scf. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
12. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.0085 lb-NOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0054 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. 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] Federally Enforceable Through Title V Permit
14. Permittee shall measure sulfur content of gas used as fuel in heater within 60 days of startup and at least once every year thereafter. Such data shall be submitted to the District within 60 days of sample collection. [District Rules 2201, 4320, and 4801]
15. Permittee shall determine sulfur content of gas combusted in heater using ASTM method D3246 or double GC for H2S and mercaptans. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
16. Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. Source testing to measure NOx and CO emissions from this unit while fired on natural gas 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] Federally Enforceable Through Title V Permit
18. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
19. 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] Federally Enforceable Through Title V Permit
20. NOx 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] Federally Enforceable Through Title V Permit
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
22. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

23. 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] Federally Enforceable Through Title V Permit

24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

25. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor 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] Federally Enforceable Through Title V Permit

26. If either the NOx or CO concentrations corrected to 3% O2, 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 the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

27. 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] Federally Enforceable Through Title V Permit

28. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (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] Federally Enforceable Through Title V Permit

29. 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] Federally Enforceable Through Title V Permit

30. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1899 lb/quarter; SOx: 521 lb/quarter; PM10: 1471 lb/quarter, and VOC: 1206 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 . [District Rule 2201] Federally Enforceable Through Title V Permit

31. ERC Certificate Numbers S-3514-2, S-3508-5, and S-3615-1 (or certificates split from theses certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-2234-248-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: OCCIDENTAL OF ELK HILLS INC
MAILING ADDRESS: 10800 STOCKDALE HIGHWAY
BAKERSFIELD, CA 93311

LOCATION: GAS PLANT
SECTION SE-35, T-30S, R-23E
TUPMAN, CA

SECTION: SE 14 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
2000 GALLON HORIZONTAL DRAIN TANK SERVED BY VAPOR RECOVERY SYSTEM WITH VAPORS RETURNED TO A PROCESS STREAM OR TO A GAS GATHERING SYSTEM

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. 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 NSR Rule] Federally Enforceable Through Title V Permit
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. 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] Federally Enforceable Through Title V Permit

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-2234-248-0 : Feb 9 2012 9:16AM -- EDGEHILR : Joint Inspection Required with EDGEHILR

6. Permittee shall maintain with the permit accurate fugitive component counts and resulting emissions for the tank calculated using (ALR) equations for a 10,000 ppmv leak threshold included in EPA, "Protocol for Estimating Leak Emissions" (EPA - 453/R-95-017, November 1995). [District Rule 2201] Federally Enforceable Through Title V Permit

7. Permittee shall maintain with the permit accurate fugitive component counts and resulting emissions for the tank vapor control system calculated using (ALR) equations for a 2,000 ppmv leak threshold included in EPA, "Protocol for Estimating Leak Emissions" (EPA - 453/R-95-017, November 1995). [District Rule 2201] Federally Enforceable Through Title V Permit

8. Storage tank and all piping, valves, and fittings shall be constructed and maintained in a leak-free condition. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

9. A leak-free condition is defined as a condition without a gas leak or a liquid leak. A gas leak is defined as a reading in excess of 10,000 parts per million by volume (ppmv) for the tank and 2,000 parts per million by volume (ppmv) for the tank vapor control system , as methane, above background on a portable hydrocarbon detection instrument that is calibrated to methane in accordance with the procedures specified in EPA Test Method 21. A liquid leak is defined as the dripping of organic liquid at a rate more than 3 drops per minute. A gas or liquid leak is a violation of this permit and shall be reported as a deviation. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

10. VOC fugitive emissions in piping from tank to vapor control system trunk line shall not exceed 0.1 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

11. VOC fugitive emissions associated with tank shall not exceed 0.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Gas-leak concentration shall be determined by EPA Method 21. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Storage tank shall be equipped with a vapor recovery system consisting of a closed vent system that collects all VOCs from the storage tank, and a VOC control device. The vapor recovery system shall be APCO-approved and maintained in gas-tight condition. The VOC control device shall be either of the following: a vapor return or condensation system that connects to a gas pipeline distribution system, or an approved VOC destruction device the reduces the inlet VOC emissions by at least 99% by weight as determined by the test method specified in Section 6.4.7. [District Rules 2201and 4623] Federally Enforceable Through Title V Permit

14. The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

15. Any tank gauging or sampling device on storage tank vented to the vapor recovery system shall be equipped with a leak-free cover which shall be closed at all times except during gauging or sampling. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

16. Operator shall visually inspect storage tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shell and roof of the uninsulated tank for structural integrity annually. [District Rules 2210 and 4623] Federally Enforceable Through Title V Permit

17. Upon detection of a liquid leak from storage tank, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. Upon detection of a gas leak, defined as a VOC concentration of greater than 10,000 parts per million by volume (ppmv) for the tank and 2,000 parts per million by volume (ppmv) for the tank vapor control system measured in accordance with EPA Method 21, operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

19. Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

20. If a component type for storage tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

21. Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

22. 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] Federally Enforceable Through Title V Permit