San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JUL 11 2013

Ms. Melinda Hicks
Kern Oil and Refining Company
7724 E. Panama Lane
Bakersfield, CA 93307

Re: Notice of Preliminary Decision – ATC / Certificate of Conformity
District Facility # S-37
Project # S-1100705

Dear Ms. Hicks:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. Kern Oil and Refining Company is requesting an Authority to Construct to modify the existing rerun unit (S-37-2) to allow the processing of "transmix". The rerun unit modification will include adding a heater reboiler with SCR rated up to 30 MMBtu/hr, vessels, and sulfur absorbers.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authority to Construct with a Certificate of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authority 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:SPL/st

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

Newspaper notice for publication in Bakersfield Californian and for posting on valleyair.org

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NOTICE OF PRELIMINARY DECISION
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND
THE PROPOSED MINOR 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 issuance of Authority To Construct to Kern Oil and Refining Company at 7724 E. Panama Lane in Bakersfield, California. Kern Oil and Refining Company is requesting an Authority to Construct to modify the existing rerun unit (S-37-2) to allow the processing of "transmix". The rerun unit modification will include adding a heater reboiler with SCR rated up to 30 MMBtu/hr, vessels, and sulfur absorbers.

The District's analysis of the legal and factual basis for this proposed action, project #S-1100705, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and at any District office. For additional information, please contact the District at (661) 392-5500. Written comments on the proposed initial permit must be submitted by August 15, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Refinery Operations

Facility Name:	Kern Oil and Refining Company	Date:	June 26, 2013
Mailing Address:	7724 E. Panama Lane	Engineer:	Steve Leonard
	Bakersfield, CA 93307	Lead Engineer:	Allan Phillips
		Date:	June 27, 2013
Contact Person:	Melinda Hicks		
Telephone:	(661) 845-0761 x 4521		
Application #(s):	S-37-2-8		
Project #:	S-1100705		
Deemed Complete:	March 15, 2010		
Facility Name:	Kern Oil and Refining Company		
Mailing Address:	7724 E. Panama Lane		
	Bakersfield, CA 93307-9210		

I. Proposal

Kern Oil and Refining Company (KOR) is requesting an Authority to Construct (ATC) to modify the existing rerun unit (S-37-2) to allow the processing of "transmix". Transmix (transportation mixture) is produced when refined petroleum products such as gasoline and diesel mix during pipeline transportation. When they are combined, these products no longer meet approved specifications and cannot be used. The proposed modification will allow KOR to reprocess (rerun) the transmix back into usable products.

The rerun unit modification will include adding a heater reboiler with SCR rated up to 30 MMBtu/hr, vessels, and sulfur absorbers. A design detail of the process is not finalized at this point. KOR has agreed to an ATC condition that design details will be submitted to the District at least 30 days prior to initiation of construction. As such, KOR has proposed a maximum heater input (30.0 MMBtu/hr) and will offset the proposed maximum increase in emissions which are required to be offset. The actual installed heater may be lower in heat input rating, but no higher. Permit conditions will include a list of approved heater and burner equivalent equipment that has been previously approved in project S1060040 and S1064331.

This project was deemed complete on March 15, 2010. However, the project was not processed at that time because of CEQA greenhouse house gas (GHG) mitigation requirements and the absence of a District approved Best Performance Standard (BPS) which KOR could comply with. KOR is now a "Covered Entity" in the California Air Resources Board's Cap and

Trade Program. As such, they are granted exclusion from demonstrating compliance with the District's GHG mitigation measures and the application processing may move forward.

The September 21, 2006, version of Rule 2201 was in effect at the time the application was deemed complete and will be utilized for this project.

KOR received its Initial Title V Operating Permit on December 17, 2002. This project involves the construction of a new heater that is subject to an NSPS requirement (Section III of the CAA). As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Rule 2520, Section 3.29. KOR has requested that this project be processed with 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.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (9/21/06)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99) Subpart Ja – Standards of Performance for Petroleum Refineries Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007 Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (10/16/08)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater Than 5.0 MMBtu/hr (10/16/08)
Rule 4351	Boilers, Steam Generators, and Process Heaters - RACT (8/21/2003)
Rule 4455	Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants (4/20/05)
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 facility is located at 7724 E. Panama Lane in Bakersfield, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

KOR is applying to modify their existing rerun unit permit (S-37-2) to allow the processing of transmix. Transmix (transportation mixture) is produced when refined petroleum products such as gasoline and diesel mix during pipeline transportation. When they are combined, these products no longer meet approved specifications and cannot be used. The proposed modification will allow KOR to reprocess (rerun) the transmix to produce usable products.

The rerun unit modification will include adding a process heater/reboiler rated up to 30 MMBtu/hr with selective catalytic reduction (SCR) for exhaust NO_X control, process vessels, and sulfur absorbers. See the attached process flow diagram (Appendix B) for equipment and process information.

V. Equipment Listing

Pre-Project Equipment Description:

S-37-2-6: RERUN UNIT INCLUDING PRE-FLASH DRUM, FRACTIONATOR, STRIPPER, ACCUMULATOR, AND ASSOCIATED VALVES, FLANGES, AND CONNECTORS

Proposed Modification:

S-37-2-8: MODIFICATION OF RERUN UNIT INCLUDING PRE-FLASH DRUM, FRACTIONATOR, STRIPPER, ACCUMULATOR, AND ASSOCIATED VALVES, FLANGES, AND CONNECTORS: ADD TRANSMIX UNIT INCLUDING A REBOILER HEATER WITH GLSF MIN BURNER (OR EQUIVALENT) WITH A MAXIMUM RATING 30 MMBTU/HR, A CRI SCR CATALYST (OR EQUIVALENT), VESSELS, AND SULFUR ADSORBERS

Post Project Equipment Description:

S-37-2-8: 30 MMBTU/HR RERUN UNIT INCLUDING PRE-FLASH DRUM, FRACTIONATOR, STRIPPER, ACCUMULATOR, AND ASSOCIATED VALVES, FLANGES, AND CONNECTORS, TRANSMIX UNIT INCLUDING A REBOILER HEATER WITH GLSF MIN BURNER, A CRI SCR CATALYST, VESSELS, AND SULFUR ADSORBERS

VI. Emission Control Technology Evaluation

Emissions from the gas-fired heater include NO_X, CO, VOC, PM_{10}, and SO_X.

The new heater will be fired on either purchased natural gas, refinery fuel gas, or a combination thereof. Kern Oil & Refining Co. has indicated that the heater will be fired primarily on refinery fuel gas.

The proposed burners are of a low-NO_x design, incorporating staged fuel combustion and internal flue gas recirculation. Kern has proposed to use one of the following burners for each application: Zeeco Incorporated Model GLSF Free Jet Burner, Zeeco Incorporated Model GLSF Min Emission Burner, Callidus Technologies Model Ultra Blue Burner, LE CSG, LE CRG, CSG, CSGC, John Zink Coolstar 200 series, John Zink Coolstar 300 Series, Todd Variflame 11, Todd LCF (Coolfuel), or Maxon Low NO_X Optima SLS Burner.

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. Information on some of the potential new burners is included in Appendix C.

Selective Catalytic Reduction systems selectively reduce NO_x emissions by injecting ammonia (NH_3) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH_3, and O_2 react on the surface of the catalyst to form molecular nitrogen (N_2) and H_2O. SCR is capable of over 90 percent NO_x reduction. Titanium oxide is the SCR catalyst material most commonly used, though vanadium pentoxide, noble metals, or zeolites are also used. The ideal operating temperature for a conventional SCR catalyst is 600 to 750 °F. Exhaust gas temperatures greater than the upper limit (750 °F) will cause NO_x and NH_3 to pass through the catalyst unreacted. Ammonia slip will be limited to 10 ppmvd @ 3% O_2.

SO_2 emissions from the heater will occur as a result of firing natural gas or treated refinery fuel gas. SO_2 emissions will be limited to 9 ppmv @ 3% O_2, as required by Rule 4320.

Additional fugitive components from the installation of new vessels and piping are expected to increase VOC emissions by 1.6 lbs/day. VOCs from fugitive components are currently minimized with an inspection, maintenance, and repair program consistent with applicable District Rule 4455. See Appendix E for the pre-project and post-project fugitive component count VOC calculations.

VII. General Calculations

A. Assumptions

- Applicant has requested a range of heater capacities up to 30 MMBtu/hr for design flexibility; the quantity of offsets required will be based on a maximum heat input 30.0 MMBtu/hr
- Heater will be fired on natural gas, refinery fuel gas, or a combination thereof, with a maximum sulfur content equivalent to PUC quality natural gas (applicant)
- F factor for refinery fuel gas is 7958 dscf/MMBtu @ 60 deg F (applicant)
- Refinery fuel gas higher heating value derived from the gas analysis is 956 Btu/scf
- Ammonia slip will be limited to 10 ppmv (applicant)
- Fugitive VOC component emissions calculated via spreadsheets located in Appendix E
- Pre-project emissions (PE1) from existing Permit to Operate
- Post project emissions consist of gas-fired heater emissions for NO_X, SO_X, PM_{10}, CO, and VOC plus the existing and new fugitive VOC component emissions

B. Emission Factors

- Applicant proposes pre-project and post project fugitive emissions based on California Implementation Guidelines for Estimating Mass Emissionsof Fugitive Hydrocarbon Leaks at Petroleum Facilities; Table IV-3a: CAPCOA -Revised 1995 EPA Protocol Refinery Correlation Equations for Refineries and Marketing Terminals. This is allowed by District Policy APR 1110, "Using Revised Emission Factors"
- An annual fuel use limit of 168,962 MMBtu/yr. will be placed on the heater since the NO_X emissions based on the maximum heat input rating of 30 MMBtu/hr and 8,760 hrs./yr. exceeds the available NO_X emission reduction credits (ERCs) owned by KOR. This affects the calculated annual PE2 for all pollutants

30 MMBtu/hr Heater Reboiler

Pollutant	Emission Factors – Natural Gas		Source
NO_X	0.0061 lb-NO_X/MMBtu	5 ppmv NO_X @ 3% O_2	Rule 2201 BACT requirement
SO_X	0.0152 lb/MMBtu	9 ppmv@ 3% O_2	Rule 4320
PM_{10}	0.0076 lb-PM_{10}/MMBtu	-	AP-42 (07/98) Table 1.4-2
CO	0.0370 lb-CO/MMBtu	50 ppmv CO (@ 3%O2)	Rule 2201 BACT requirement
VOC	0.0055 lb-VOC/MMBtu	13 ppmv VOC (@ 3%O2)	AP-42 (07/98) Table 1.4-2

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Pre-Project Potential to Emit S-37-2-6 (PE1)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	0	0
SO_X	0	0
PM_{10}	0	0
CO	0	0
VOC	2.2	817

2. Post Project Potential to Emit (PE2)

The potential to emit for the reboiler heater is calculated as follows, and summarized in the table below:

$PE2_{NOx}$ = (0.0061 lbs./MMBtu) ∗ (30 MMBtu/hr) ∗ (24 hr/day)
= 4.4 lbs. NO_X/day

= (0.0061 lb/MMBtu) ∗ (168,962 MMBtu/year) = 1,031 lb NO_X/year

$PE2_{SOx}$ = (0.0152 lbs./MMBtu) ∗ (30 MMBtu/hr) ∗ (24 hr/day)
= 10.9 lbs. SO_X/day

= (0.0152 lb/MMBtu) ∗ (168,962 MMBtu/year) = 2,568 lb SO_X/year

$PE2_{PM10}$ = (0.0076 lbs./MMBtu) ∗ (30 MMBtu/hr) ∗ (24 hr/day)
= 5.5 lbs. PM_{10}/day

= (0.0076 lb/MMBtu) ∗ (168,962 MMBtu/year)= 1,284 lb PM_{10}/year

$PE2_{CO}$ = (0.0370 lbs./MMBtu) ∗ (30 MMBtu/hr) ∗ (24 hr/day)
= 26.6 lbs. CO/day

= (0.0370 lb/MMBtu) ∗ (168,962 MMBtu/year) = 6,252 lbs. CO/year

$PE2_{VOC}$ = (0.0055 lbs./MMBtu) ∗ (30 MMBtu/hr) ∗ (24 hr/day)
= 4.0 lbs. VOC/day

= (0.0055 lb/MMBtu) ∗ (168,962 MMBtu/year) = 929 lb VOC/year

PE2 from fugitive VOC components:

Proposed post-project fugitive VOC emissions from additional vessels and piping (see Appendix E) = 3.2 lbs.-VOC/day & 1,158 lbs.-VOC/year

Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	4.4	1,031
SO_X	10.9	2,568
PM_{10}	5.5	1,284
CO	26.6	6,252
VOC	7.2	2,087

<u>Ammonia (NH_3) Emissions from SCR:</u>

The proposed daily NH_3 emissions can be calculated as follows:

PE = ppmv x MW x (2.64×10^{-9}) x ff x BR x [20.9 / (20.9 – O_2%)] x 24 hour/day

Where:

- ppmv is the emission concentration in ppmvd @ 3% O_2
- MW is the molecular weight of the pollutant (MW_{NH3} = 17 lb/lb-mol)
- 2.64 x 10^{-9} is one over the molar specific volume (lb-mol/MMscf, at 60 °F)
- ff is the F-factor for natural gas (8,578 scf/MMBtu, at 60 °F)
- BR is the rating of the heater (MMBtu/hr)
- O_2 is the stack oxygen content to which the emission concentrations are corrected (3%)

PE_{NH3} (lb/hr) = 10 x 17 x (2.64×10^{-9} lb-mol/MMscf) x 8,578 (scf/MMBtu) x 30.0 (MMBtu/hr) [20.9 / (20.9 – 3.0)] =
0.1349 lb-NH_3/hr

PE_{NH3} (lbs./day) = 10 x 17 x (2.64×10^{-9} lb-mol/MMscf) x 8,578 (scf/MMBtu) x 30.0 (MMBtu/hr) [20.9 / (20.9 – 3.0)] x (24 hr/day) =
3.3 lb-NH_3/day

PE_{NH3} (lb/yr) = 10 x 17 x (2.64×10^{-9} lb-mol/MMscf) x 8,578 (scf/MMBtu) x 30.0 (MMBtu/hr) [20.9 / (20.9 – 3.0)] x 5,632 (hour/year) = **760 lb-NH_3/year**

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.

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
Facility Permits	163,607	93,441	40,609	922,595	348,259
ERC S-1475-4 (PM_{10})*	0	0	15,768	0	0
ERC S-1475-5 (SO_X)*	0	331,662	0	0	0
ERC S-2726-5 (SO_X)*	0	487,315	0	0	0
Pre-Project SSPE (SSPE1)	163,607	912,418	56,377	922,595	348,259

* Originating ERC reduced only by amounts used onsite

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

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
Facility Permits	163,607	93,441	40,609	922,595	348,259
S-37-2-8 (IPE)	1,031	2,568	1,284	6,252	1,294
ERC S-1475-4 (PM_{10})*	0	0	15,768	0	0
ERC S-1475-5 (SO_X)*	0	331,662	0	0	0
ERC S-2726-5 (SO_X)*	0	487,315	0	0	0
Post-Project SSPE (SSPE2)	164,638	914,986	57,661	928,847	350,356

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." Fugitive VOC emissions are included for major source determinations at refineries.

As seen in Section VII.C.3 & VII.C.4 above, this facility contains ERCs that have been banked at the source and which have not been used on-site; therefore, an adjusted Stationary Source Potential to Emit ($SSPE_{Permit\ Unit}$) will be used to determine major source status.

Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Adjusted Post Project SSPE ($SSPE2_{Permit\ Unit}$)	164,638	96,009	41,893	928,847	350,356
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Major Source?	Yes	No	No	Yes	Yes

This source is an existing Major Source for NO_X, CO, and VOC emissions and will remain a Major Source for these pollutants. This facility is not a major source of SO_X, or PM_{10} emissions either pre-project or post-project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO_2	VOC	SO_2	CO	PM	PM_{10}	CO_2e
Estimated Facility PE before Project Increase	82	175	48	464	20	20	>100,000
PSD Major Source Thresholds	100	100	100	100	100	100	100,000
PSD Major Source ? (Y/N)	N	Y	N	Y	N	N	Y

As shown above, the facility is an existing major source for PSD for at least one pollutant. Therefore the facility is an existing major source for PSD.

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.

BE VOC

Permit Unit S-37-2-6 is only a source of fugitive VOC emissions, pre-project. Fugitive VOC emissions are constant, regardless of vapor pressure or throughput. BE = PE1 = 2.2 lbs-VOC/day

7. 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 NO_X, CO and VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions units 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 Major Modification.

Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO_X	1,031	50,000	No
SO_X	2,568	80,000	No
PM_{10}	1,284	30,000	No
VOC	2,087	50,000	No

8. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO_2 (as a primary pollutant)
- SO_2 (as a primary pollutant)
- CO
- PM
- PM_{10}
- Greenhouse gases (GHG): CO_2, N_2O, CH_4, HFCs, PFCs, and SF6

The first step of this PSD applicability determination consists of determining whether the facility is or is not an existing PSD Major Source (See Section VII.C.5 of this document).

If the facility is an existing PSD Major Source, the second step to determine PSD applicability is to determine if the project results in a significant increase and if so, also a significant net emissions increase for any PSD pollutant.

If the facility is an existing source but not an existing PSD Major Source, the second step to determine PSD applicability is to determine if the project, by itself, would be a PSD Major Source. If so, then the project must be evaluated to determine if the the emissions increase of any PSD pollutant will result in a significant increase and if so, also a significant net emissions increase.

If the facility is a new source, the second step to determine PDS applicability is to determine if this new facility will become a new PSD Major Soruce as a result of the project. If so, then the project must be evaluated to determine if the emissions increase of any PSD pollutant will result in a significant emissions increase and if so, also a significant net emissions increase.

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be an existing PSD Major Source. Because the project is not located within 10 km (6.2 miles) of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

I. Project Emission Increase – Significance Determination

a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no futher PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)						
	NO_2	SO_2	CO	PM	PM_{10}	CO_2e
Total PE from New and Modified Units	0.5	1.3	3.1	0.6	0.6	9,871
PSD Significant Emission Increase Thresholds	40	40	100	25	15	75,000
PSD Significant Emission Increase?	N	N	N	N	N	N

As demonstrated above, because the post-project total potentials to emit from all new and modified emission units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

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

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 Major Modification.

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

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

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a new reboiler heater rated at ≤ 30 MMBtu/hr with a PE greater than 2 lb/day for NO_X, SO_X, PM_{10}, CO, and VOC. BACT is triggered for NO_X, SO_X, PM_{10}, and VOC since the PEs are greater than 2 lbs/day. BACT is also triggered for CO since the SSPE2 for CO is greater than 200,000 lbs/year, as demonstrated in Section VII.C.5 of this document.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore, BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project, only additional new emissions unit added to the existing permit unit; therefore, BACT is not triggered.

d. Major Modification

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

2. BACT Guideline

BACT Guideline 1.8.1 was created to apply to the ≤ 30MMBtu/hr refinery heater. [Refinery Heater fired on refinery fuel gas and/or natural gas (< or = 50 MMBtu/hr.)] (see Appendix G). This BACT Guideline is currently "rescinded" pending adjustment to the NO_X emission levels. Rule 4320 requires NO_X levels which are lower than this BACT Guideline's "Achieved in Practice" NO_X level of 25 ppmv @ 3% O_2. A BACT determination cannot be less stringent than an applicable prohibitory rule requirement. However, the applicant proposes 5 ppmv NO_X @ 3% O_2 which corresponds to the most stringent BACT Guideline 1.8.1 and Rule 4320 level listed for a refinery process heater rated between 30 MMBtu/hr and 110 MMBtu/hr. Current District practice for BACT determinations involving indirect fired fuel burning equipment is to utilize the requirements from Rule 4320 for NO_X, SO_X, and PM_{10} emissions, where applicable. The most stringent of Rule 4320 requirements and determinations listed in BACT Guideline 1.8.1 are referenced for this analysis.

3. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis (see Appendix G), BACT has been satisfied with the following:

NO_X: 5 ppmv @ 3% O_2 using selective catalytic reduction (SCR)
*SO_X: Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3-hr rolling average)
*PM10: Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur
<u>*NOTE:</u> *The applicant has proposed to meet the Rule 4320 requirement of 9 ppmv SO_X as SO_2 from the heater exhaust stream with treated refinery gas*
CO: 50 ppmv CO @ 3% O_2
VOC: Good Combustion Practices

B. Offsets

Offset requirements are triggered if the SSPE2 (calculated above) equals or exceeds the Offset Threshold levels outlined in Rule 2201.

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 (SSPE2 lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Post Project SSPE (SSPE2)	164,638	914,986	57,661	928,847	350,356
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 all pollutants; 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 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) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$, 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)

As calculated in Section VII.C.6 above, the Baseline Emissions (BE) from this unit are equal to the Pre-Project Potential to Emit (PE1) since the heater is a new unit and the existing emissions from permit unit S-37-2 are fugitive VOC emissions.

Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR

$\underline{NO_X}$:
PE2 (NO_X) = 1,031 lb/year
BE (NO_X) = 0 lb/year
ICCE = 0 lb/year

Offsets Required (lb/year) = ([1,031 – 0] + 0) x DOR
= 1,031 lb. NO_X/year x DOR

$\underline{SO_X}$:
PE2 (SO_X) = 2,568 lb/year
BE (SO_X) = 0 lb/year
ICCE = 0 lb/year

Offsets Required (lb/year) = ([2,568 – 0] + 0) x DOR
= 2,568 lb SO_X/year x DOR

$\underline{PM_{10}}$:
PE2 (PM_{10}) = 1,284 lb/year
BE (PM_{10}) = 0 lb/year
ICCE = 0 lb/year

Offsets Required (lb/year) = ([1,284– 0] + 0) x DOR
= **1,284lb PM_{10}/year x DOR**

CO:
PE2 (CO) = 6,252 lb./year
BE (CO) = 0 lb/year
ICCE = 0 lb/year

Offsets Required (lb/year) = ([6,252 – 0] + 0) x DOR
= **6,252 lbs. CO/year x DOR***

Pursuant to Rule 2201, Section 4.6.1; Emission offsets shall not be required for "increases in carbon monoxide in attainment areas if 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's Technical Services Division performed CO modeling which showed no adverse impact to the ambient air quality (see Appendix H). Therefore, CO offsets required = **0 lbs/yr**

VOC:
PE2 (VOC) = 2,087 lbs./year
BE (VOC) = 817 lb/year
ICCE = 0 lb/year

Offsets Required (lbs./year) = ([2,087 – 817] + 0) x DOR
= **1,270 lbs. VOC/year x DOR**

As demonstrated in the calculations above, offsets are required for all criteria pollutants except CO.

Offsets Required (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Post Project SSPE (SSPE2)	177,416	567,522	58,180	932,062	656,286
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	Yes	Yes	Yes	Yes	Yes
Offsets Required (SSIPE)	**1,031**	**2,568**	**1,284**	**0**	**1,270**

NOx Offsets
The applicant has stated that the facility plans to use NO_x ERC certificates N-878-2, N-879-2, and S-2653-2 to offset the increases in NO_X emissions associated with this project. The certificates identified have available quarterly NO_X credits as follows:

	1st Quarter (lbs)	2nd Quarter (lbs)	3rd Quarter (lbs)	4th Quarter (lbs)
ERC #N-878-2	24	19	32	24
ERC #N-879-2	156	188	224	202
ERC #S-2653-2	94	277	91	215
TOTAL	274	484	347	441

These ERCs represent emission reductions generated by The Hershey Company (N-1968) in Oakdale, CA and Occidental of Elk Hills, Inc. (S-2234) in Tupman, CA. All reductions originated more than 15 miles from Kern Oil and Refining Co., Therefore the appropriate DOR is 1.5. Quarterly amounts adjusted during rounding to satisfy requirements.

	1st Quarter (lbs)	2nd Quarter (lbs)	3rd Quarter (lbs)	4th Quarter (lbs)	Annual (lbs)
NO_x Offsets Required	257	258	258	258	1,031
Offsets x 1.5	385	387	387	387	1,546
ERC Available*	274	484	347	441	**1,546**

* Rule 2201, Section 4.13.8 allows for actual emissions reductions for NO_X and VOC that occurred from April through November to be used to offset increases in NO_X and VOC during any period of the year. NO_X offsets from 2nd and 4th quarter above will be used to address the shortage in available offsets from 1st and 3rd quarter.

Because the amount of offsets available (1,546 lbs-NO_x/year) does not offset a 30 MMBtu/hr heater operating at 0.0061 lbs-NO_x/MMBtu for 24 hrs/day, 365 days/yr (175,200 MMBtu/year), the applicant has elected to limit the fuel use to equal 168,962 MMBtu/yr heat input and will install a dedicated fuel meter:

(0.0061 lbs-NO_x/MMBtu)(168,962 MMBtu/yr) = 1,030.7 lbs-NO_x/yr x 1.5 DOR = 1,546 lbs-NO_x/year.

Because 30.0 MMBtu/hr is the proposed maximum heater (design specs not finalized), if a smaller heater is ultimately installed the fuel use limit may be revised through the application process.

<u>SO_X and PM_{10} Offsets</u>
The applicant has stated that the facility plans to use SO_x ERC certificate S-2387-5 to offset the increases in SO_X (as SO_2) and PM_{10} emissions associated with this project. The District's interpollutant offsetting ratio when using SO_X reductions to offset PM_{10} increases is 1:1. This is multiplied by any offsetting distance ratio applied. The certificate identified has available quarterly SO_X credits as follows:

	1st Quarter (lbs)	2nd Quarter (lbs)	3rd Quarter (lbs)	4th Quarter (lbs)
ERC #S-2387-5	7,500	7,500	7,500	7,500

These ERCs represent emission reductions generated onsite by KOR. Therefore the appropriate DOR and the Interpollutant ratio is 1.0.

	1st Quarter (lbs)	2nd Quarter (lbs)	3rd Quarter (lbs)	4th Quarter (lbs)	Annual (lbs)
SO_X Offsets Required	642	642	642	642	2,568
PM_{10} offsets Required	321	321	321	321	1,284
Total offsets required	963	963	963	963	3,852
ERC Available	7,500	7,500	7,500	7,500	30,000
Surplus	6,537	6,537	6,537	6,537	26,148

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

VOC Offsets

The applicant has stated that the facility plans to use ERC certificates S-2882-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

	1st Quarter (lbs)	2nd Quarter (lbs)	3rd Quarter (lbs)	4th Quarter (lbs)
ERC #S-2882-1	1,370	1,384	1,369	1,517

This ERC represents emissions reductions generated by Big West of California LLC (S-33) which is within 15 miles of Kern Oil and Refining Co.; therefore the appropriate DOR is 1.3. Offsets required = 1,499 lbs-VOC/yr. DOR = 1.3; Total offsets required = 1,949 lbs-VOC/yr. Quarterly amounts adjusted during rounding to satisfy requirements.

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Offsets Required	374	375	375	375
Offsets x 1.3 DOR	486	487	488	488
ERC Available	1,370	1,384	1,369	1,517
Surplus	884	897	881	1,029

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

CO Offsets

As described above, CO offsets are not required for this project.

Proposed Rule 2201 Offset Conditions:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_X emission reduction credits in the following quantities: 1st quarter – 257 lb, 2nd quarter – 258 lbs, 3rd quarter – 258 lbs, and 4th quarter – 258 lbs. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_X emission reduction credits to offset both SO_X (as SO_2) and PM_{10} increases in emissions in the following quantities: 1st quarter – 963 lbs, 2nd quarter – 963 lbs, 3rd quarter - 963 lbs, and 4th quarter - 963 lbs. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits in the following quantities: 1st quarter – 374 lbs, 2nd quarter - 375 lbs, 3rd quarter - 375 lbs, and 4th quarter - 375 lbs. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]

- ERC Certificate Numbers S-2882-1, N-878-2, N-879-2, S-2653-2, and S-2387-5 (or a certificate split from these 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]

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. 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.

a. New Major Source

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

b. Major Modification

As demonstrated in VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not required.

c. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant; therefore public noticing for PE > 100 lb/day purposes is not required.

d. Offset Threshold

Public notification is required if the Pre-Project Stationary Source Potential to Emit (SSPE1) is increased from a level below the offset threshold to a level exceeding the emissions offset threshold, for any pollutant.

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_X	176,385	177,416	20,000 lb/year	No
SO_X	564,859	567,427	54,750 lb/year	No
PM_{10}	56,848	58,132	29,200 lb/year	No
CO	925,580	931,831	200,000 lb/year	No
VOC	654,787	656,286	20,000 lb/year	No

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

e. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	177,416	176,385	1,031	20,000 lb/year	No
SO_x	567,427	564,859	2,568	20,000 lb/year	No
PM_{10}	58,132	56,848	1,284	20,000 lb/year	No
CO	931,831	925,580	6,252	20,000 lb/year	No
VOC	656,286	654,787	1,499	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, this project will not result in emissions, for any criteria pollutant, which would subject the project to any of the noticing requirements listed above. However, as discussed under Rule 2520 in the Compliance Section below, the project is a Title V Significant Modification. Therefore, public notice will be required for this project.

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.

For the heater, the DELs are stated in the form of emission factors (ppm or lb/MMBtu), the maximum capacity, and the maximum operational time of 24 hours per day. Also, to ensure compliance with the offset requirements of Rule 2201 the total heat input rating of the burners installed on each permit unit will be limited to 168,962 MMBtu/yr if the potential to emit of NO_x emissions exceeds the NO_x offsets which are available for this project.

DELs for fugitive component VOC emissions will be listed on the permits as direct lb/day emission limits. Compliance with these limits will be shown by results of fugitive component screening and resulting mass emission calculations.

<u>Proposed Rule 2201 (DEL) Conditions:</u>

- Emission rates from the heater, except during startup and shutdown, shall not exceed any of the following limits: NO_x (as NO_2) – 5 ppmv at 3% O_2 or 0.0061 lb/MMBtu; SO_X (as SO_2) – 9 ppmv at 3% O_2 or 0.0152 lb/MMBtu; CO - 50 ppmv @ 3% O_2; PM_{10} – 0.0076 lbs/MMBtu; or VOC – 0.0055 lbs/MMBtu. [District Rules 2201, 4301, 4305, 4306, 4320, and 4351]

- Heater shall be fired only on natural gas, refinery fuel gas, or a combination thereof. [District Rule 2201, 40 CFR Subpart Ja]
- The total heat input to the heater authorized by this Authority to Construct shall not exceed 168,962 MMBtu/year. [District Rule 2201]
- VOC emission rate from fugitive components associated with this permit unit shall not exceed 3.2 lbs./day. [District Rule 2201]
- Permit holder shall maintain accurate component count and resultant VOC emissions according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-2a: 1995 EPA Protocol Refinery Screening Value Range Emission Factors. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

District Rule 4320 requires NO_X and CO emission testing not less than once every 12 months. Gaseous fuel fired units demonstrating compliance on two consecutive compliance source tests may defer the following source test for up to thirty-six months. The District Source Test Policy (APR 1705 10/09/97) requires annual testing for all pollutants controlled by catalysts. The control equipment will include a SCR system and ammonia slip is an indicator of how well the SCR system is performing.

Therefore, source testing for NO_X, CO, and ammonia will be required within 60 days of initial operation and at least once every 12 months thereafter. Upon demonstrating compliance on two consecutive source tests, the source test may be deferred for up to thirty-six months. Source testing for Rule 4320 also satisfies any source testing requirements for Rule 2201.

KOR is proposing to demonstrate compliance with the particulate matter control requirements by complying with Section 5.4.1.2. Therefore, KOR shall provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit to Operate, or Permit Unit Requirements for S-37-122, which is the Claus based sulfur removal system permit. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2. of Rule 4320.

2. Monitoring

District Rule 4320 requires the owner of any unit equipped with NO_X reduction technology shall either install and maintain continuous emissions monitoring equipment for NO_X, CO, and oxygen, as identified in Rule 1080 (Stack Monitoring), or install and maintain APCO-approved alternate monitoring plan. Since the heater will be equipped with a low NO_X burner and a selective catalytic reduction system, this requirement applies.

The applicant proposed to utilize pre-approve alternate monitoring plan "A" (Periodic Monitoring NO_X, CO, and O_2 Emissions Concentrations) to meet the requirements of District Rule 4320. Monitoring for Rule 4320 also satisfies the monitoring requirements for Rule 2201. NH_3 monitoring shall be conducted utilizing Draeger tubes or a District approved equivalent method.

3. Recordkeeping

In addition to recordkeeping required by applicable prohibitory rules, New Source Performance Standards, and Title V, the records of the following will be required:

-daily and annual fuel usage
-startup and shutdown dates and durations
-date and time of NO_x, CO, NH_3, and O_2 measurements, the measured NO_2, NH_3 and CO concentrations corrected to 3% O_2, and the O_2 concentration, description of any corrective action taken to maintain the emissions within the acceptable range, dates of portable analyzer calibration.

4. Reporting

Excursions of NO_X and CO emission readings from the heater as determined by the portable emissions monitor, if the excursions are not rectified within one hour are also required to be reported.

In addition, reporting required in accordance with prohibitory rules, New Source Performance Standards, and Title V requirements will be included on the permit.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix H of this document for the AAQA summary sheet.

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

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*
Values are in μg/m³

Unit 2-8	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[1]	X	X	X	Pass
SO_x	Pass[2]	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[3]	Pass[3]
$PM_{2.5}$	X	X	X	Pass[3]	Pass[3]

*Results were taken from the attached PSD spreadsheets.
[1]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. The criteria pollutant 1-hour value passed using TIER I NO_2 NAAQS modeling.
[2]The project was compared to the 1-hour SO2 National Ambient Air Quality Standard that became effective on August 23, 2010 using the District's approved procedures.
[3]The maximum predicted concentration for emissions of these criteria pollutants from the proposed unit are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

Rule 2520 Federally Mandated Operating Permits

This project involves the construction of a new heater that is subject to an NSPS requirement (Section III of the CAA). As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed previously in Section I, 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. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- {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 NSR Rule]

- {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]

The Title V Compliance Certification Form is included in Appendix I.

Rule 4001 New Source Performance Standards (NSPS)

Three NSPS Subparts are applicable to the project. Each of the relevant subparts is identified below.

40 CFR 60 Subpart Ja – Standards of Performance for Petroleum Refineries Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007

Subpart Ja requires refinery fuel gas fired in new or modified heaters to not exceed 162 ppmv H_2S @ 0% O_2 (68 deg EPA std conditions)

The Rule 4320-required, and proposed, fuel gas sulfur limit of 5 gr-S/100 scf total sulfur is less than the Subpart Ja standard; therefore, the Subpart Ja standard will be subsumed by the Rule 4320 sulfur limit requirement.

Subpart Ja also requires a continuous H_2S monitor be installed upstream of the heater to demonstrate compliance with this limit. Kern is proposing to meet these requirements by using the existing H_2S CEM.

Kern will be required to follow all applicable monitoring, recordkeeping, and reporting requirements of this Subpart. Compliance is expected.

- The combustion of gases released as a result of start-up, shutdown, upset, malfunction, or the result of relief valve leakage is exempt from the 5 gr-S/100 scf total sulfur limit. [District Rule 2201, 4320, and 40CFR60.104(a)(1)]

- All refinery fuel gas combusted in the heater shall be monitored for H2S content by a continuous emissions monitoring (CEM) system. CEM shall be installed, calibrated, operated, and reported according to EPA guidelines as specified under 40 CFR 60, Subpart Ja, Specification 7, and general requirements. CEM results shall be calculated on a rolling three (3) hour basis. [District Rules 2201, 4320, 4001, Subpart Ja, 60.105(a)(4) and 60.105(a)(4)iii]

- Operator shall report all rolling 3-hour periods during which the average concentration of total sulfur as measured by the H2S continuous monitoring system exceeds 5 gr-S/100 scf. [District Rules 2201, 4001, Subpart Ja, 60.105(e)(3)(ii)]

40 CFR 60 Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

The requirements of Subpart GGGa applies to each valve, pump, pressure relief system, open-ended valve or line, or flange or other connector in VOC service at a petroleum refinery that commenced construction after January 4, 1983.

Subpart GGGa requires periodic inspection and maintenance of fugitive components at refineries.

Kern Oil and Refining will be required to follow all applicable monitoring, recordkeeping and reporting requirements of this subpart. Compliance is expected.

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). Properly operated combustion equipment fired exclusively on natural gas and treated refinery fuel gas is not expected to exceed visible emissions of Ringelmann 1 or 20% opacity. Also, based on past inspections of the facility continued compliance is expected.

A condition limiting visible emissions is included in the Title V Facility-Wide permit, S-37-0-2, condition #22; therefore an equivalent condition will not be added to the proposed permit.

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 (Appendix H), 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 cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-37-2-8	0.008 per million	No

Discussion of T-BACT

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

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Appendix H of this report, the emissions increases for this project were determined to be less than significant.

The following conditions are included to enforce the RMR:

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction [District Rule 4102]
- The stack height shall be at least 40 feet above grade. [District Rule 4102]

The following condition is included to limit ammonia (NH_3) emissions:

- The ammonia (NH_3) emissions from the exhaust of the SCR system shall not exceed 10 ppmvd @ 3% O_2. [District Rule 4102]

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.

All of the combustion equipment in this project has emission limits of 0.0076 lb PM10/MMBtu, per AP42. For gas-fired combustion equipment, it can be assumed that all PM emitted is PM10. The following calculation validates compliance with the 0.1 gr/dscf limit for these units as a worst case:

$$\frac{0.0076\ lb\ PM_{10}}{MMBtu\ heat\ input} \times \frac{1\ MMBtu\ heat\ input}{7958\ dscf\ exhaust\ (at\ 60^{o}\ F)} \times \frac{7000\ gr}{1\ lb} = 0.007\ \frac{gr\ PM_{10}}{dscf}$$

Therefore, compliance is expected. A single condition is proposed to identify the prohibitory rule particulate limits.

- Particulate matter emissions shall not exceed 0.1 grain/dscf, 0.1 grain/dscf calculated to 12% CO_2, or 10 lb/hr. [District Rules 4201 and 4301]

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates for NO_X (as NO_2) 140 lb/hr, SO_X (as SO_2) 200 lb/hr, and total combustion air contaminant emissions from fuel burning equipment (defined as total PM in Rule 1020) 10 lb/hr. This rule also limits combustion contaminants to $\leq$ 0.1 gr/scf. According to Table 1.4-2, footnote c of AP-42 (July 1998), all PM emissions from natural gas combustion are less than 1 μm in diameter. Since the permit allows only gas as a fuel, it is reasonable to assume that the total PM emissions from the new heater are equal to the PM10 emissions.

Maximum Hourly Emissions (lbs.-hr)				
Permit Number		NO_X	SO_X	PM
	Allowable (lbs.-hr)	140	200	10
S-37-2	Re-run unit 30.0 MMBtu/hr heater	0.18	0.45	0.23

All combustion equipment have emission limits that are well below the NO_X, SO_X, and Total PM pound per hour emission limit and the calculation performed previously for District Rule 4201 shows compliance with the 0.1 gr/scf limit.

Therefore, compliance with this rule is expected.

Rule 4305 Boilers, Steam Generators, and Process Steam Generators – Phase 2

This rule limits NO_X and CO emissions from boilers, steam generators, and process heaters rated greater than 5 MMBtu/hr.

All emission limits, monitoring, and record keeping requirements in Rule 4320 are equal to or more stringent than those specified in Rule 4305. Therefore, compliance with Rule 4320 will ensure compliance with Rule 4305.

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

This rule limits NO_X and CO emissions from boilers, steam generators, and process heaters rated greater than 5 MMBtu/hr.

All emission limits, monitoring, and record keeping requirements in Rule 4320 are equal to or more stringent than those specified in Rule 4306. Therefore, compliance with Rule 4320 will ensure compliance with Rule 4306.

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

This rule limits NO_X and CO emissions from boilers, steam generators, and process heaters rated greater than 5 MMBtu/hr.

The subject process heater qualifies as a refinery unit with a heat input rating between 20 and 110 MMBtu/hr, therefore, this rule requires NO_X emissions to not exceed 6 ppmv @ 3% O_2 for the standard schedule or 9 ppmv @ 3% O_2 followed by 5 ppmv @ 3% O_2 for the enhanced schedule. CO emissions are not to exceed 400 ppmv @ 3% O_2. Kern is proposing emission limits for NO_X of 5 ppmv @ 3% O_2, and CO emission limits of 50 ppmv @ 3% O_2, which are equal to or lower than the most stringent rule requirements.

Source testing: Initial source testing for NOx and CO will be required within 60 days of start up. After the initial source test, subsequent source testing shall be performed every twelve months, except if two consecutive annual source tests demonstrate compliance, source testing may be performed every 36 months. If such a source test demonstrates non-compliance, source testing shall revert back to every 12 months.

In addition, since Kern has proposed to use pre-approved Alternate Monitoring Scheme "A" using a portable analyzer, the tune-up requirement listed in Section 6.3.1 is not applicable to the heater. Section 6.3.1 also requires that, during the 36-month source testing interval, the owner/operator shall monthly monitor the operational characteristics recommended by the unit manufacturer.

Monitoring: Section 5.7.1 requires that facility operating units subject to Section 5.2 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO_X, CO and O_2, or install and maintain APCO-approved alternate monitoring.

The applicant is proposing the use of Alternate Monitoring Scheme "A" per District Policy SSP-1105, using a portable analyzer for monthly monitoring of NO_X, CO, and O_2 exhaust emissions concentrations, to satisfy monitoring requirements of this rule.

Record Keeping: Records of monitoring data shall be retained for a period of five years.

Reporting: The District will be notified if the portable analyzer readings continue to exceed the allowable emissions concentration after 1-hour of operation after detection.

Start-up and shutdown duration:

Kern Oil has requested a 12 hour startup and 9 hour shutdown period for the new heater. There are three main concerns that justify an extended startup and shutdown period.

First, as a heater is brought up to temperature, the rest of the process unit is simultaneously heating up. This start up phase must be carefully monitored and conducted in a slow and controlled manner. When the equipment heats up, it expands and causes stress to piping and connections. If this operation is performed too quickly, leaks, ruptures and failures may occur, causing safety hazards and additional risks.

Secondly, when starting up the heater after refractory replacement (maintenance and repair), the refractory must be dried out slowly. If not, it will detach from the inner-wall causing damage that results in unit shutdown, costly repairs and lost revenue due to unit downtime.

Lastly, the process temperatures must be carefully controlled. For example, the heating up of a catalyst bed is mass dependent and takes numerous hours to reach the necessary operating temperature. If the startup period is shortened, the catalyst will be damaged and will require costly replacement.

These concerns provide justifications for the proposed extended startup and shutdown periods. Therefore, the following startup and shutdown periods will be allowed by the permit.

Startup and Shutdown Durations		
	Startup Duration (hrs)	Shutdown Duration (hrs)
Re-run heater	12	9

Rule 4351 Boilers, Steam Generators, and Process Steam Generators – Phase I

This rule applies to boilers, steam generators, and process heaters at NO_x Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. The emission limits, monitoring provisions, and testing requirements of this rule are satisfied when the unit is operated in compliance with Rule 4320. Therefore, compliance with this rule is expected.

Rule 4453 Refinery Vacuum Producing Devices or Systems

This rule requires vapors from vacuum producing devices and systems to be vented through a control device or otherwise controlled through incineration, or vented into a closed refinery gas collection system. Conditions will be included on the permit to ensure the provisions of this rule are met. Compliance is expected.

Rule 4454 Refinery Process Unit Turnaround

This rule requires process vessels to be vented through a control device or otherwise controlled through incineration when depressurized for maintenance or repair. Conditions will be included on the permit to ensure the provisions of this rule are followed during such operations. Compliance is expected.

Rule 4455 Components at Petroleum Refineries, Gas Liquid Processing Facilities, and Chemical Plants

This rule requires periodic inspection of fugitive components and expedient repair of leaking components at refineries and chemical plants. Existing Rule 4451/4452 conditions will be replaced with conditions requiring compliance with Rule 4455. Conditions will be included on the permit to ensure the provisions of this rule are followed during such operations. Compliance is expected.

Rule 4801 Sulfur Compounds

This rule limits sulfur compound emissions to 2000 ppmv as SO_2. The heater included in this project is limited to SO_X emissions of 0.0152 lb/MMBtu or less (equivalent to 9 ppmv SO_2). This correlates to a stack concentration well under the 2000 ppmv allowed by this rule. Compliance is expected.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its Environmental Review Guidelines (ERG) in 2001.

The basic purposes of CEQA are to:

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

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.

This facility complies with the California Air resources Board (ARB) Cap and Trade regulation. Consistent with CCR §15064(h)(3), the District finds that compliance with ARB's Cap and Trade regulation would avoid or substantially lessen the impact of project-specific GHG emissions on global climate change. Therefore the project has a less than significant individual and cumulative impact on global climate change and Best Performance Standards or the mitigation of greenhouse gases are not required.

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 public notice, EPA and CARB review, issue Authority to Construct S-37-2-8 subject to the permit conditions on the attached draft Authority to Construct in Appendix J.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-37-2-8	3020-02-H	30.0 MMBtu/hr heater	$1030.00

Appendices

A: Permit to Operate (PTO) S-37-2-6
B: Process Flow Diagram
C: New Heater Burner Information
D: SCR Information
E: Fugitive VOC Emissions Calculation Spreadsheet
F: Quarterly Net Emissions Change (QNEC)
G: BACT Guideline and Analysis
H. HRA and AQIA Modeling Summary
I: Title V Compliance Certification Form
J: Draft Authority to Construct (ATC)

APPENDIX A
Permit to Operate (PTO) S-37-2-6

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-37-2-6 **EXPIRATION DATE:** 08/31/2016

SECTION: 25 **TOWNSHIP:** 30S **RANGE:** 28E

EQUIPMENT DESCRIPTION:
RERUN UNIT INCLUDING PRE-FLASH DRUM, FRACTIONATOR, STRIPPER, ACCUMULATOR, AND ASSOCIATED VALVES, FLANGES, AND CONNECTORS

PERMIT UNIT REQUIREMENTS

1. Copies of all test results to determine compliance with the conditions of this permit shall be maintained. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
2. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
3. Permittee shall maintain a record of hours of operation of the Rerun Unit. Records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
4. Spent caustics and waste liquids shall be disposed of in a manner preventing the creation of odors. [District Rule 4102]
5. Fugitive VOC emissions shall not exceed 13,656 lb per year. [District NSR Rule] Federally Enforceable Through Title V Permit
6. Except for complying with the applicable requirements of Sections 6.1 and 7.3, the requirements of this rule shall not apply to 1) components subject to Rule 4623 (adopted 5/19/05), 2) pressure relief devices, pumps, and compressors equipped with a closed vent system as defined in Section 3.0, 3) components buried below ground, 4) components exclusively handling liquid streams which have less than 10 percent by weight (<10 wt%) evaporation at 150 C, 5) components exclusively handling liquid streams with a VOC content less than ten percent by weight (<10 wt%), 6) components exclusively handling gas/vapor streams with a VOC content of less than one percent by weight (<1wt%), 7) components incorporated in lines exclusively in vacuum service, 8) components exclusively handling commercial natural gas, and 9) one-half inch nominal or less stainless steel tube fittings which have been demonstrated to the Air Pollution Control Officer (APCO) to be leak-free based on initial inspection. [District Rule 4455, 4.1 & 4.2] Federally Enforceable Through Title V Permit
7. Except for components subject to Rule 4623 (Storage of Organic Liquids) or for components included in the inspection and maintenance (I&M) program implemented pursuant to Section 5.7 of Rule 4623, the operator shall not use any component that leaks in excess of the allowable leak standards of Rule 4455, or is found to be in violation of the provisions specified in Section 5.1.3. A component identified as leaking in excess of an allowable leak standard may be used provided it has been identified with a tag for repair, has been repaired, or is awaiting re-inspection after repair, within the applicable time period specified within the rule. [District Rule 4455, 5.1.1] Federally Enforceable Through Title V Permit
8. Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible and with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4455, 5.1.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

9. The operator shall be in violation of Rule 4455 if any District inspection demonstrates that one or more of the conditions in Section 5.1.4 (Leak Standards) exist at the facility. [District Rule 4455, 5.1.3.1] Federally Enforceable Through Title V Permit

10. Except for annual operator inspection described in Section 5.1.3.2.3, any operator inspection that demonstrates that one or more of the conditions in Section 5.1.4 exist at the facility shall not constitute a violation of Rule 4455 if the leaking components are repaired as soon as practicable but not later than the time frame specified in Rule 4455. Such components shall not be counted towards determination of compliance with the provisions of Section 5.1.4. [District Rule 4455, 5.1.3.2.1] Federally Enforceable Through Title V Permit

11. Leaking components detected during operator inspection pursuant Section 5.1.3.2.1 that are not repaired, replaced, or removed from operation as soon as practicable but not later than the time frame specified in Rule 4455 shall be counted toward determination of compliance with the provisions of Section 5.1.4. [District Rule 4455, 5.1.3.2.2] Federally Enforceable Through Title V Permit

12. Any operator inspection conducted annually for a component type (including operator annual inspections pursuant to Section 5.2.5, 5.2.6, 5.2.7, or 5.2.8) that demonstrates one or more of the conditions in Section 5.1.4 exist at the facility shall constitute a violation of Rule 4455 regardless of whether or not the leaking components are repaired, replaced, or removed from operation within the allowable repair time frame specified in Rule 4455. [District Rule 4455, 5.1.3.2.3] Federally Enforceable Through Title V Permit

13. A component shall be considered leaking if one or more of the conditions specified in Sections 5.1.4.1 through 5.1.4.4 of Rule 4455 exist at the facility. Readings shall be taken as methane using a portable hydrocarbon detection instrument and shall be made in accordance with the methods specified in Section 6.4.1 of Rule 4455. [District Rule 4455, 5.1.4] Federally Enforceable Through Title V Permit

14. The operator shall audio-visually inspect for leaks all accessible operating pumps, compressors and Pressure Relief Devices (PRDs) in service at least once every 24 hours, except when operators do not report to the facility for that given 24 hours. Any identified leak that cannot be immediately repaired shall be reinspected within 24 hours using a portable analyzer. If a leak is found, it shall be repaired as soon as practical but not later than the time frame specified in Table 3. [District Rule 4455, 5.2.1 & 5.2.2] Federally Enforceable Through Title V Permit

15. The operator shall inspect all components at least once every calendar quarter, except for inaccessible components, unsafe-to-monitor components and pipes. Inaccessible components, unsafe-to-monitor components and pipes shall be inspected in accordance with the requirements set forth in Sections 5.2.5, 5.2.6, and 5.2.7. New, replaced, or repaired fittings, flanges and threaded connections shall be inspected immediately after being placed into service. Components shall be inspected using EPA Method 21. [District Rule 4455, 5.2.3, 5.2.4, 5.2.5, 5.2.6 & 5.2.7] Federally Enforceable Through Title V Permit

16. The operator may apply for a written approval from the APCO to change the inspection frequency from quarterly to annually for a component type, provided the operator meets all the criteria specified in Sections 5.2.8.1 through 5.2.8.3. This approval shall apply to accessible component types, specifically designated by the APCO, except pumps, compressors, and PRDs which shall continue to be inspected on a quarterly basis. [District Rule 4455, 5.2.8] Federally Enforceable Through Title V Permit

17. An annual inspection frequency approved by the APCO shall revert to quarterly inspection frequency for a component type if either the operator inspection or District inspection demonstrates that a violation of the provisions of Sections 5.1, 5.2 and 5.3 of the rule exists for that component type, or the APCO issued a Notice of Violation for violating any of the provisions of Rule 4455 during the annual inspection period for that component type. When the inspection frequency changes from annual to quarterly inspections, the operator shall notify the APCO in writing within five (5) calendar days after changing the inspection frequency, giving the reason(s) and date of change to quarterly inspection frequency. [District Rule 4455, 5.2.9 & 5.2.10] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

18. The operator shall initially inspect a process PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the time of the release. To insure that the process PRD is operating properly, and is leak-free, the operator shall re-inspect the process PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the date of the release using EPA Method 21. If the process PRD is found to be leaking at either inspection, the PRD leak shall be treated as if the leak was found during quarterly operator inspections. [District Rule 4455, 5.2.11] Federally Enforceable Through Title V Permit

19. Except for process PRD, a component shall be inspected within 15 calendar days after repairing the leak or replacing the component using EPA Method 21. [District Rule 4455, 5.2.12] Federally Enforceable Through Title V Permit

20. A District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. Any attempt by an operator to count such District inspections as part of the mandatory operator's inspections is considered to be willful circumvention and is a violation of this rule. [District Rule 4455, 5.2.13] Federally Enforceable Through Title V Permit

21. Upon detection of a leaking component, the operator shall affix to that component a weatherproof readily visible tag that contains the information specified in Section 5.3.3. The tag shall remain affixed to the component until the leaking component has been repaired or replaced; has been re-inspected using EPA Method 21; and is found to be in compliance with the requirements of Rule 4455. [District Rule 4455, 5.3.1 5.3.2 and 5.3.3] Federally Enforceable Through Title V Permit

22. An operator shall minimize all component leaks immediately to the extent possible, but not later than one (1) hour after detection of leaks in order to stop or reduce leakage to the atmosphere. [District Rule 4455, 5.3.4] Federally Enforceable Through Title V Permit

23. If the leak has been minimized but the leak still exceeds the applicable leak standards of Rule 4455, an operator shall repair or replace the leaking component, vent the leaking component to a closed vent system, or remove the leaking component from operation as soon as practicable but not later than the time period specified in Table 3. For each calendar quarter, the operator may be allowed to extend the repair period as specified in Table 3, for a total number of leaking components, not to exceed 0.05 percent of the number of components inspected, by type, rounded upward to the nearest integer where required. [District Rule 4455, 5.3.5] Federally Enforceable Through Title V Permit

24. If the leaking component is an essential component or a critical component and which cannot be immediately shut down for repairs, the operator shall minimize the leak within one hour after detection of the leak. If the leak has been minimized, but the leak still exceeds any of the applicable leak standards of Rule 4455, the essential component or critical component shall be repaired or replaced to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4455 5.3.6] Federally Enforceable Through Title V Permit

25. For any component that has incurred five repair actions for major gas leaks or major liquid leaks, or any combination of major gas leaks and major liquid leaks within a continuous 12-month period, the operator shall comply with at least one of the requirements specified in Sections 5.3.7.1, 5.3.7.2, 5.3.7.3, or 5.3.7.4 by the applicable deadlines specified in Sections 5.3.7.5 and 5.3.7.6. If the original leaking component is replaced with a new like-in-kind component before incurring five repair actions for major leaks within 12-consecutive months, the repair count shall start over for the new component. An entire compressor or pump need not be replaced provided the compressor part(s) or pump part(s) that have incurred five repair actions as described in Section 5.3.7 are brought into compliance with at least one of the requirements of Sections 5.3.7.1 through 5.3.7.6. [District Rule 4455, 5.3.7] Federally Enforceable Through Title V Permit

26. The operator shall monitor process PRD by using electronic process control instrumentation that allows for real time continuous parameter monitoring or by using telltale indicators for the process PRD where parameter monitoring is not feasible. [District Rule 4455, 5.4.1] Federally Enforceable Through Title V Permit

27. After a release from a process PRD in excess of 500 pounds of VOC in a continuous 24-hour period, the operator shall immediately conduct a failure analysis and implement corrective actions as soon as practicable but not later than 30 days to prevent the reoccurrence of similar release. For refineries processing greater than 20,000 barrels of crude oil per day, any subsequent release in excess of 500 pounds of VOC within a continuous 24-hour period shall be subject to the requirements of Section 5.4.5. [District Rule 4455, 5.4.3 & 5.4.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

28. The operator of a refinery processing greater than 20,000 barrels of crude oil per day shall connect all process PRDs serving that process equipment to an APCO-approved closed vent system as defined in Section 3.0 if any of the conditions specified in Sections 5.4.5.1 and 5.4.5.2 occurs. Process PRDs subject to the provisions of Section 5.4.5 shall be connected to an APCO-approved closed-vent system as soon as practicable, but no later than the first turnaround after the requirement to connect becomes effective. [District Rule 4455, 5.4.5] Federally Enforceable Through Title V Permit

29. All major components and critical components shall be physically identified clearly and visibly for inspection, repair, and recordkeeping purposes. The physical identification shall consist of labels, tags, manufacturer's nameplate identifier, serial number, or model number, or other system approved by the APCO that enables an operator or District personnel to locate each individual component. The operator shall replace tags or labels that become missing or unreadable as soon as practicable but not later than 24 hours after discovery. The operator shall comply with the requirements of Sections 6.1.4 if there is any change in the description of major components or critical components. [District Rule 4455, 5.5.1 & 5.5.2] Federally Enforceable Through Title V Permit

30. The operator shall keep a copy of the operator management plan at the facility and make it available to the APCO, ARB and US EPA upon request. By January 30 of each year, the operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to the existing, approved operator management plan. [District Rule 4455, 6.1.2 & 6.1.4] Federally Enforceable Through Title V Permit

31. The operator shall maintain an inspection log containing, at a minimum, 1) total number of components inspected, and total number and percentage of leaking components found by component types, 2) location, type, name or description of each leaking component, and description of any unit where the leaking component is found, 3) date of leak detection and method of leak detection, 4) for gaseous leaks, record the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak, 5) date of repair, replacement, or removal from operation of leaking components, 6) identification and location of essential component and critical components found leaking that cannot be repaired until the next process unit turnaround or not later one year after leak detection, whichever comes earlier, 7) methods used to minimize the leak from essential components and critical components that cannot be repaired until the next process unit turnaround or not later one year after leak detection, whichever comes earlier, 8) after the component is repaired or is replaced, the date of reinspection and the leak concentration in ppmv, 9) inspector's name, business mailing address, and business telephone number, and 10) the facility operator responsible for the inspection and repair program shall sign and date the inspection log certifying the accuracy of the information recorded in the log. [District Rule 4455, 6.2.1] Federally Enforceable Through Title V Permit

32. Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, analyzer reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration. [District Rule 4455, 6.2.3] Federally Enforceable Through Title V Permit

33. The operator shall notify the APCO, by telephone or other methods approved by the APCO, of any process PRD release described in Sections 5.4.4 and 5.4.5, and any release in excess of the reportable quantity limits as stipulated in 40 CFR, Part 117, Part 302 and Part 355, including any release in excess of 100 pounds of VOC, within one hour of such occurrence or within one hour of the time said person knew or reasonably should have known of its occurrence. [District Rule 4455, 6.3.1] Federally Enforceable Through Title V Permit

34. The operator shall submit a written report to the APCO within thirty (30) calendar days following a PRD release subject to 6.3.1. The written report shall include 1) process PRD type, size, and location, 2) date, time and duration of the process PRD release, 3) types of VOC released and individual amounts, in pounds, including supporting calculations, 4) cause of the process PRD release, and 5) corrective actions taken to prevent a subsequent process PRD release. [District Rule 4455 6.3.2] Federally Enforceable Through Title V Permit

35. Copies of all records shall be retained for a minimum of five (5) years after the date of an entry. Such records shall be made available to the APCO, ARB, or US EPA upon request. [District Rule 4455, 6.2.2, 6.2.3 & 6.2.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

36. Measurements of gaseous leak concentrations shall be conducted according to US EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in US EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. [District Rule 4455, 6.4.1] Federally Enforceable Through Title V Permit

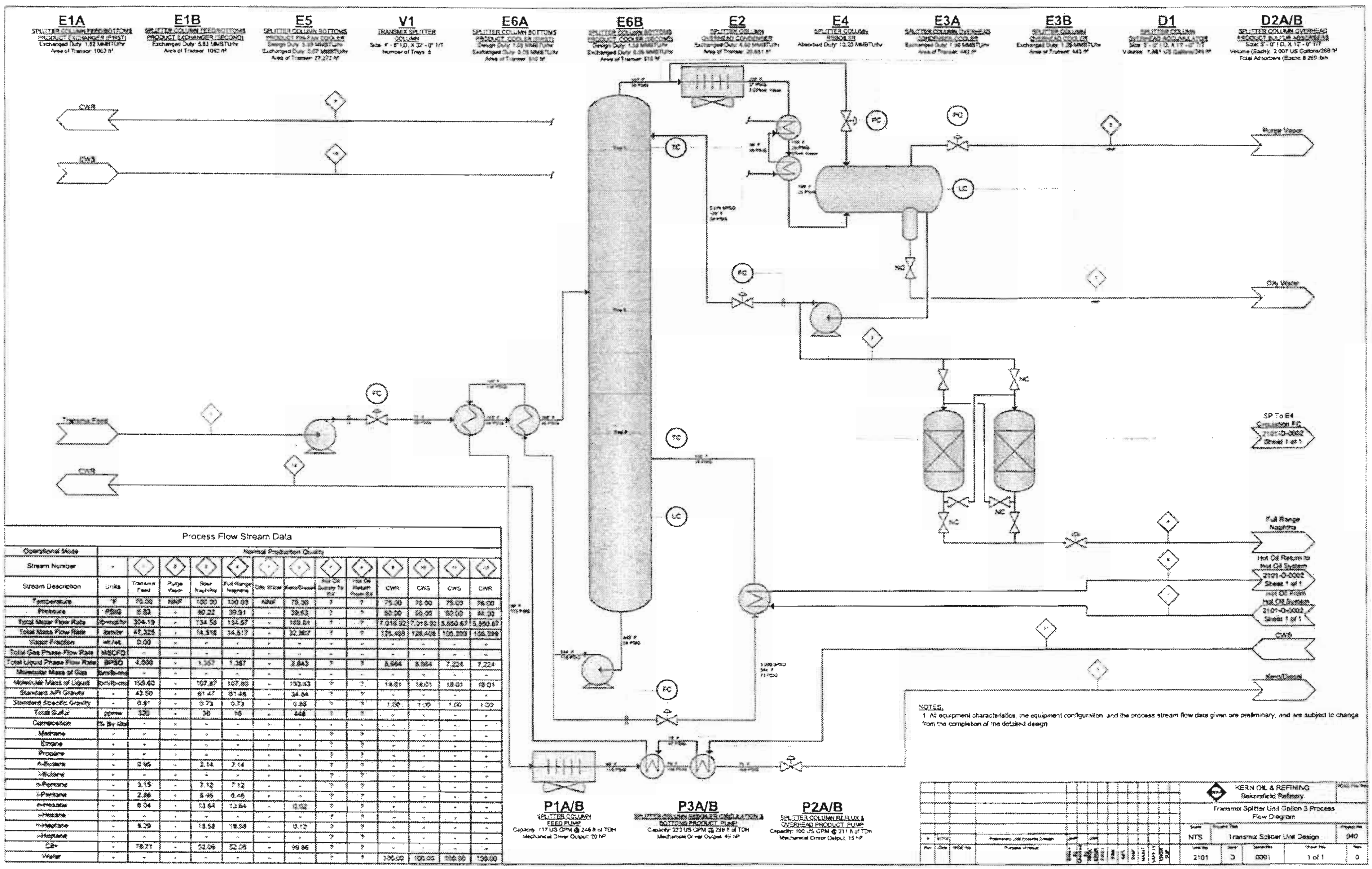
37. The VOC content of exempt streams shall be determined using American Society of Testing and Materials (ASTM) D 1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 for liquids. [District Rule 4455, 6.4.2] Federally Enforceable Through Title V Permit

38. For exempt streams, the percent by volume liquid evaporated at 150 deg C shall be determined using ASTM D 86. [District Rule 4455, 6.4.3] Federally Enforceable Through Title V Permit

39. Equivalent test methods other than specified in Sections 6.4.1 through 6.4.5 may be used provided such test methods have received prior approval from the US EPA, ARB, and APCO. [District Rule 4455, 6.4] Federally Enforceable Through Title V Permit

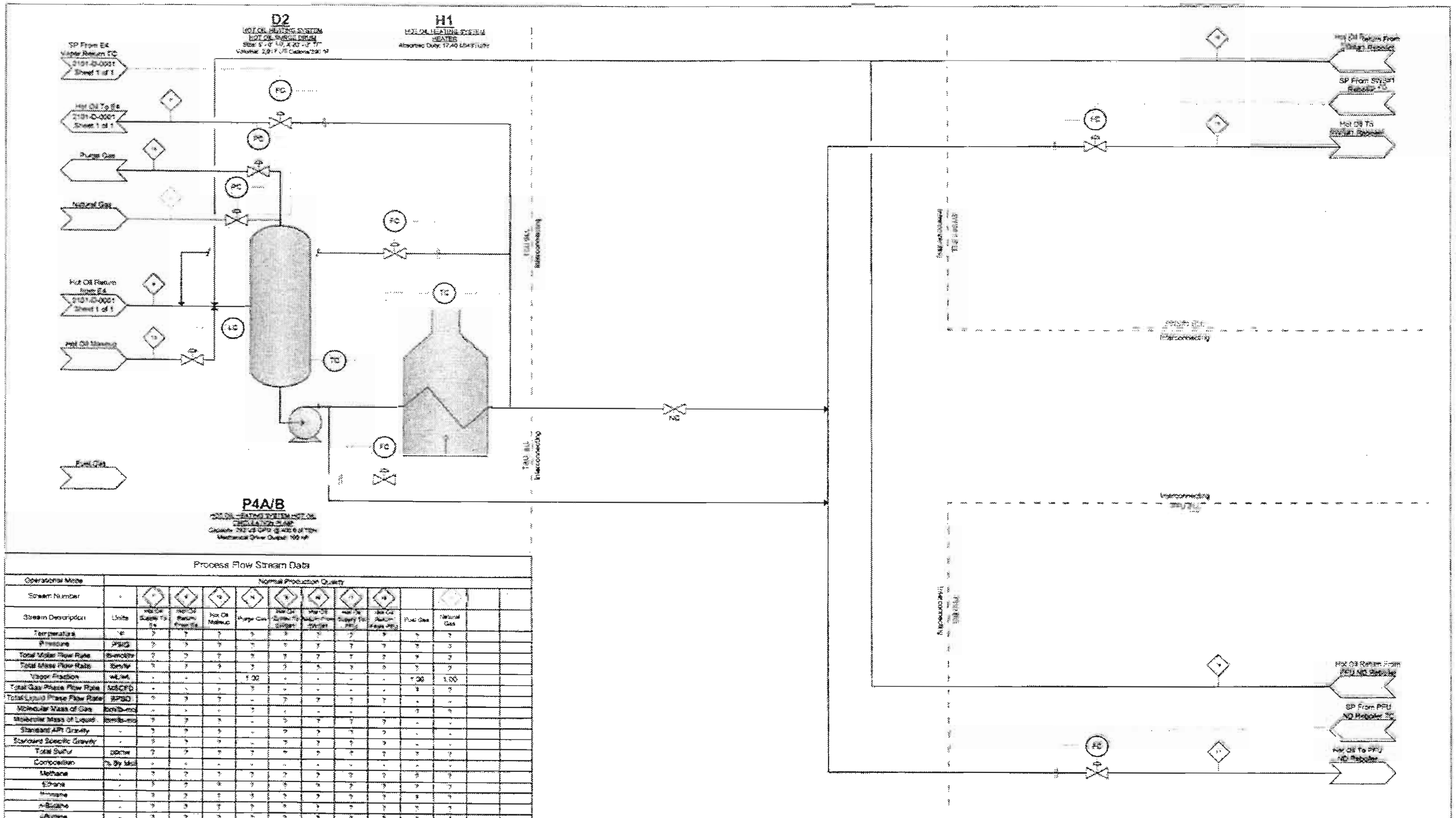
40. Permittee shall maintain accurate records of number of fugitive components and expected emissions calculated using Technical Guidance Document to AB2588 for refineries Tables D1-D3, AP-42 Table 9.1-2, or other District approved emission factors. [District NSR Rule and District Rule 1070] Federally Enforceable Through Title V Permit

APPENDIX B
Process Flow Diagram



Process Flow Stream Data

Operational Mode	Normal Production Quality												
Stream Number	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stream Description	Units	Transmix Feed	Purge Vapor	Sour Naphtha	Full Range Naphtha	Oily Water	Kero/Diesel	Hot Oil Supply To E4	Hot Oil Return From E4	CWR	CWS	CWS	CWR
Temperature	°F	75.00	NNF	100.00	100.00	NNF	75.00	?	?	75.00	75.00	75.00	76.00
Pressure	PSIG	6.83	-	80.22	39.91	-	39.63	?	?	50.00	50.00	50.00	44.00
Total Molar Flow Rate	lb-mol/hr	324.19	-	134.56	134.57	-	189.61	?	?	7,018.92	7,018.92	5,850.67	5,850.67
Total Mass Flow Rate	lb/hr	47,325	-	14,518	14,517	-	32,807	?	?	126,408	126,408	105,399	105,399
Vapor Fraction	wt/wt	0.00	-	-	-	-	-	-	-	-	-	-	-
Total Gas Phase Flow Rate	MSCFD	-	-	-	-	-	-	-	-	-	-	-	-
Total Liquid Phase Flow Rate	BPSD	4,800	-	1,357	1,357	-	2,843	?	?	8,664	8,664	7,224	7,224
Molecular Mass of Gas	lb/lb-mol	-	-	-	-	-	-	-	-	-	-	-	-
Molecular Mass of Liquid	lb/lb-mol	158.60	-	107.87	107.80	-	153.43	?	?	18.01	18.01	18.01	18.01
Standard API Gravity	-	43.50	-	61.47	61.48	-	34.84	?	?	-	-	-	-
Standard Specific Gravity	-	0.81	-	0.73	0.73	-	0.85	?	?	1.00	1.00	1.00	1.00
Total Sulfur	ppmw	320	-	36	16	-	448	?	?	-	-	-	-
Composition	% By Mol	-	-	-	-	-	-	-	-	-	-	-	-
Methane	-	-	-	-	-	-	-	?	?	-	-	-	-
Ethane	-	-	-	-	-	-	-	?	?	-	-	-	-
Propane	-	-	-	-	-	-	-	?	?	-	-	-	-
n-Butane	-	2.95	-	2.14	2.14	-	-	?	?	-	-	-	-
i-Butane	-	-	-	-	-	-	-	?	?	-	-	-	-
n-Pentane	-	3.15	-	7.12	7.12	-	-	?	?	-	-	-	-
i-Pentane	-	2.86	-	6.46	6.46	-	-	?	?	-	-	-	-
n-Hexane	-	8.34	-	13.64	13.64	-	0.02	?	?	-	-	-	-
i-Hexane	-	-	-	-	-	-	-	?	?	-	-	-	-
n-Heptane	-	8.29	-	18.58	18.58	-	0.12	?	?	-	-	-	-
i-Heptane	-	-	-	-	-	-	-	?	?	-	-	-	-
C8+	-	78.71	-	52.06	52.06	-	99.86	?	?	-	-	-	-
Water	-	-	-	-	-	-	-	?	?	100.00	100.00	100.00	100.00



Process Flow Stream Data

Operational Mode		Normal Production Quality											
Stream Number	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		
Stream Description	Units	Hot Oil Supply To E4	Hot Oil Return From E4	Hot Oil Makeup	Purge Gas	[illegible]	[illegible]	Hot Oil Supply To PFU	Hot Oil Return From PFU	Fuel Gas	Natural Gas		
Temperature	°F	?	?	?	?	?	?	?	?	?	?		
Pressure	PSIG	?	?	?	?	?	?	?	?	?	?		
Total Molar Flow Rate	lb-mol/hr	?	?	?	?	?	?	?	?	?	?		
Total Mass Flow Rate	lbm/hr	?	?	?	?	?	?	?	?	?	?		
Vapor Fraction	wt./wt.	-	-	-	1.00	-	-	-	-	1.00	1.00		
Total Gas Phase Flow Rate	MMSCFD	-	-	-	?	-	-	-	-	?	?		
Total Liquid Phase Flow Rate	BPSD	?	?	?	-	?	?	?	?	-	-		
Molecular Mass of Gas	lbm/lb-mol	-	-	-	?	-	-	-	-	?	?		
Molecular Mass of Liquid	lbm/lb-mol	?	?	?	-	?	?	?	?	-	-		
Standard API Gravity	-	?	?	?	-	?	?	?	?	-	-		
Standard Specific Gravity	-	?	?	?	-	?	?	?	?	-	-		
Total Sulfur	ppmw	?	?	?	?	?	?	?	?	?	?		
Composition	% By Mol	-	-	-	-	-	-	-	-	-	-		
Methane	-	?	?	?	?	?	?	?	?	?	?		
Ethane	-	?	?	?	?	?	?	?	?	?	?		
Propane	-	?	?	?	?	?	?	?	?	?	?		
n-Butane	-	?	?	?	?	?	?	?	?	?	?		
i-Butane	-	?	?	?	?	?	?	?	?	?	?		
n-Pentane	-	?	?	?	?	?	?	?	?	?	?		
i-Pentane	-	?	?	?	?	?	?	?	?	?	?		
n-Hexane	-	?	?	?	?	?	?	?	?	?	?		
i-Hexane	-	?	?	?	?	?	?	?	?	?	?		
n-Heptane	-	?	?	?	?	?	?	?	?	?	?		
i-Heptane	-	?	?	?	?	?	?	?	?	?	?		
C8+	-	?	?	?	?	?	?	?	?	?	?		
Water	[illegible]	?	?	?	?	?	?	?	?	?	?		

KERN OIL & REFINING
Bakersfield Refinery

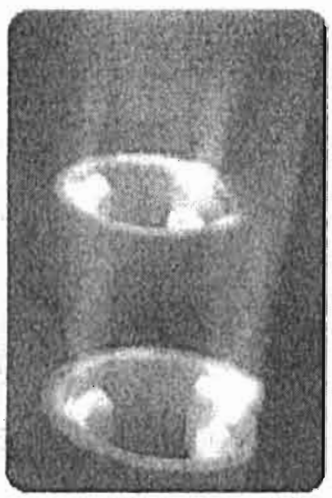
Transmix Splitter Unit Option 3 Process Flow Diagram

Scale	Project Title	Project No.
NTS	Transmix Splitter Unit Design	940

Unit No.	Size	Dwg No.	Sheet No.	Rev.
2101	D	0002	1 of 1	[illegible]

APPENDIX C

New Heater Burner Information

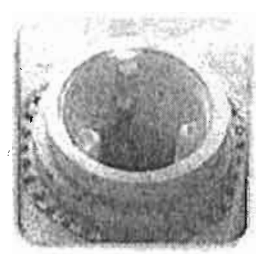

Free Jet Burner

Burners Details

Types of Burners

- Next Generation Series
  - Round Flame
  - Flat Flame
- Ultra Low Series
  - Round Flame
  - Flat Flame
- Conventional Series
  - Raw Gas
  - Premix
  - Radiant Wall
  - Combination Oil & Gas
  - Low Nox Combination Oil & Gas

GLSF Free Jet Series



Zeeco GLSF Free-Jet burners are used for applications where the lowest NOx emissions or Next Generation Ultra Low NOx burners are required. These burners are designed to be very compact for easy retrofit and low emissions. In general, these burners are smaller than most staged fuel type burners and other Next Generation burners while providing much lower NOx emissions. In general, these burners are used for applications where NOx emissions in the 15 ppmv to 30 ppmv range are required, depending upon the operating conditions. This type of burner can be provided with bottom air entry or side air entry configurations. The burner can be used in natural or forced draft type applications and typically each burner is provided with an individual plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. Typically, these burners are designed to achieve a 5:1 turndown or greater. The Free-Jet series of burners has set the industry standard that other companies try to match. This revolutionary burner design is protected by U.S. Patent # 6,499,990.

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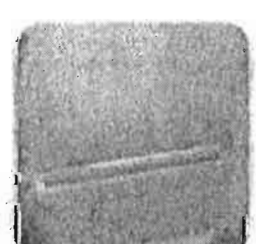
GLSF Free Jet Hearth Series



Zeeco GLSF Free Jet hearth burners may be utilized when extremely low NOx emission levels are required for a flat flame type burner. The burners can be designed to fire against the furnace wall and/or free-standing, where the burner is mounted in a location where the burner is fired in the open away from the wall. By maximizing the amount of inert products of combustion with the fuel gas, amazing ultra low emissions can be achieved in an extremely small footprint. In general, these burners are used for applications where NOx emissions in the 15 ppmv to 30 ppmv range are required, depending upon the operating conditions. This type of burner can be provided with bottom air entry or side air draft type applications and typically each burner is provided with an individual plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. Typically, these burners are designed to achieve a 5:1 turndown or greater. This revolutionary burner design is protected by U.S. Patent # 6,499,990.

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GLSF Min Emissions Series

Zeeco GLSF Min Emissions burners are used where low & ultra-low NOx emissions are required. This is our most popular burners designed to be very compact for easy retrofit and low emissions. In general, these burners are smaller than most staged fuel type burners while providing much lower NOx emissions. Min Emission burners are used in applications where NOx emissions in the 25 ppmv to 40 ppmv range are required, depending upon the operating conditions. The Min Emission burner can be provided with bottom air entry or side air entry configurations. The burners can be used in natural or forced draft type applications. Typically each burner is provided with an individual plenum, but there are also versions available for mounting in a common plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. These burners are designed to achieve a 5:1 turndown or greater. This innovative burner design is protected by U.S. Patent # 6,394,792.

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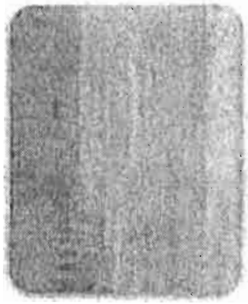
GLSF Min Emissions/Enhanced Jet Flat Series



Zeeco GLSF Min Emissions / Enhanced Jet Flat flame burners are used for ethylene cracking applications. Our most popular burner for hearth fired applications. This flat flame burner is offered in both gas only and combination oil and gas configurations. The combination oil and gas version is referred to as the Model CLSF. These burners utilize our proven low emission technology for superior performance verses conventional and previous generation Low NOx burners. These burners were designed to achieve incredibly low NOx emissions while providing better heat flux; and most importantly, well defined flames that do not roll back into the tubes. These burners are used for applications where NOx emissions in the 35 ppmv to 70 ppmv range are required for high temperature applications, depending upon the operating conditions. This type of burner can be provided with bottom air entry or side air entry configurations. The burners can be used in natural or forced draft type applications. Typically each burner is provided with an individual plenum, but there are also versions available for mounting in a common plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. Typically, these burners are designed to achieve a 6:1 turndown or greater.

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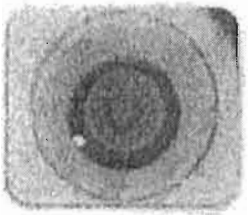
GB Series



Zeeco GB Series burners are used for conventional NOx emissions type applications where low cost, good flame quality and great turndown is required. Depending upon the actual operating conditions, these burners typically are used for applications where the NOx emissions can be approximately 100 ppmv or greater. This type of burner can be provided with bottom air entry or side air entry configurations. The burners can be used in natural or forced draft type applications. Typically each burner is provided with an individual plenum, but there are also versions available for mounting in a common plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. Typically, these burners are designed to achieve a turndown greater than 5:1.

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PSR Series

Zeeco PSR Series burners are used for applications which require a spider type conventional pre-mixed burner. Depending upon the actual operating conditions, these burners are used for applications where the NOx emissions can be approximately 100 ppmv or greater. This type of burner can be provided with a side air entry configuration. The burners can be used in natural or forced draft type applications. Typically each burner is provided with an individual plenum. These burners are generally designed to achieve a 3:1 turndown or greater.

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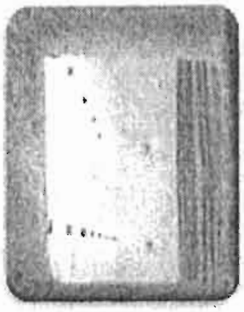
RW Series



Zeeco has a full range of burners for cracking furnaces including our RW series low emission pre-mixed radiant wall burner. The Zeeco low emission RW series burner utilizes an advanced venturi design, a customized gas tip and secondary fuel gas injection to achieve very low NOx emissions. It does this without creating flame interaction or flame flashback problems. Additionally, Zeeco offers a forced-draft version of the RWSF burner. These burners mix the fuel and combustion air at the tip. The burners can operate under pre-heated or ambient air.

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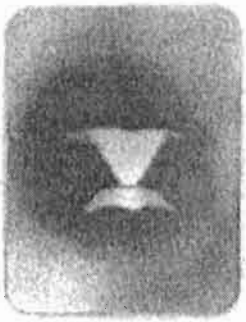
AC Series



Zeeco AC Series burners are used for conventional NOx emissions type applications where low cost, good flame quality and great turndown is required. Depending upon the actual operating conditions, these burners typically are used for applications where the gas NOx emissions can be approximately 100 ppmv or greater and the oil NOx emissions greater than 300 ppmv. This type of burner is provided with a side air entry configuration. The burners can be used in natural or forced draft type applications. Typically each burner is provided with an individual plenum, but there are also versions available for mounting in a common plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. Typically, these burners are designed to achieve a 5:1 turndown or greater on gas and 3:1 on oil.

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AK Series

Zeeco AK Series burners are used for low NOx emissions utilizing staged air. Depending upon the actual operating conditions, these burners are generally used for applications where the gas NOx emissions can be approximately 50 ppmv or greater and the oil NOx emissions approximately 175 ppmv. The AK burner is provided with a side air entry configuration. The burner can be used in natural or forced draft type applications. Typically each burner is provided with an individual plenum, but there are also versions available for mounting in a common plenum. The standard burner is designed to achieve a noise level of 85 dBa, but if required, much lower noise levels can be achieved by designing with alternative materials. Typically, these burners are designed to achieve a 5:1 turndown or greater on gas and 3:1 on oil.

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APPENDIX D
SCR Information

CRI CATALYST YOUR GLOBAL PARTNER IN PETROCHEMICALS

SEARCH GO

Breathe Easy
compliance really can be simple

Environmental Catalysts & Systems

- NOx Reduction
  - Gas-Fired Boilers
  - Gas Turbines
  - Cracker Furnaces
  - Refinery Heaters
  - Waste Incineration
  - Nitric Acid Plants
  - Chemical Process Plants
  - QUOTE REQUEST
  - REFERENCES
  - TECH PAPERS
- Catalytic Dioxin Destruction
- N_2O Decomposition

What's New

NOx Reduction

CRI Selective Catalytic (SCR) NOx Reduction Technology

Since its commercial introduction in the 1970's, Selective Catalytic Reduction (SCR) of nitrogen oxides (NOx) has gained wide acceptance worldwide as the most effective and technologically proven method for high-percentage NOx removal from flue gases.

CRI's technology, known as the Shell DeNOx System (SDS), operates on the SCR principal. It uses ammonia (NH 3) as the reductant and a catalyst to promote the reaction of NH 3 with NOx, forming nitrogen and water.

An efficient retrofit

The CRI SCR catalyst can operate at lower temperatures and with lower pressure drop than conventional SCR catalysts. Consequently, the CRI SCR system can be installed immediately before or in the stack, thereby avoiding any modifications to combustion or heat-recovery equipment or negative effects on other upstream plant operations. This makes the CRI technology very cost-effective for retrofit SCR applications.

Typical Application Conditions and Performance of the CRI Low-Temperature SCR Technology:	
Operating Temperature	
Typical Application	325-450° F /160-230° C
Range	300-700° F/ 150-375° C
Pressure Drop	
Typical Application	2-3 in. H_2O/ 5-7.5 mbar
Range	As low as 1 in. H_2O/2.5 mbar
Performance	
NOx Conversion	>90%
NH_3 Slip	5-10 ppm or lower

Unique catalyst and module technology

The CRI technology differs from conventional SCR systems in two important aspects: the catalyst and the catalyst reactor module. The catalyst is in the form of pellets and can be produced in a range of sizes and shapes to meet specific performance requirements. Due to the high activity of the catalyst, high NOx removal efficiencies with simultaneous control of NH 3 slip can be obtained at relatively low temperatures.

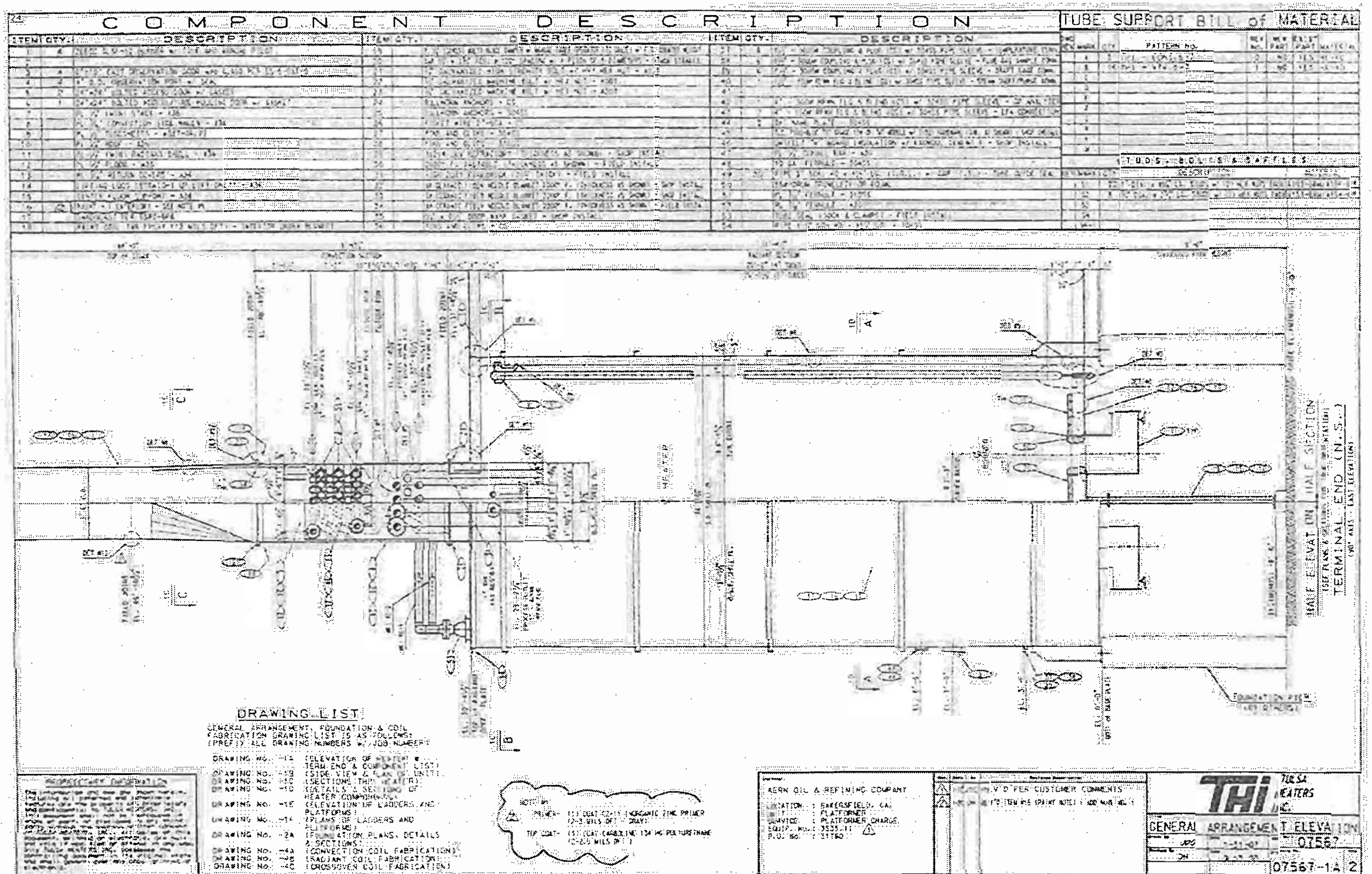
The catalyst reactor module is based on the Lateral Flow Reactor (LFR) principal. The LFR is a packed-bed type reactor which offers the advantage of low pressure drop even at high space velocities. Furthermore, the LFR design makes possible the most efficient utilization of the SCR catalyst, which minimizes the amount of catalyst required and facilitates fast loading and unloading of catalyst from the reactor.

Development of the LFR technology has resulted in a modular construction system, providing a high degree of flexibility in the design of SCR systems for specific applications, particularly retrofit.

A broad range of applications

The CRI SCR technology has been successfully applied to combustion and chemical process operations including gas turbines, refinery heaters, boilers, ethylene cracker furnaces, nitric acid plants and waste incineration facilities.

Resulting from the high catalyst activity and flexibility of the LFR module design, the optimal and most cost-effective combination of NOx removal, NH 3 slip, temperature, pressure drop and available plot or duct space can be developed for virtually any application.



COMPONENT DESCRIPTION
TUBE SUPPORT BILL of MATERIAL
ITEM QTY. DESCRIPTION
HALF ELEVATION HALF SECTION
TERMINAL END (N.S.)
FOUNDATION PIER
DRAWING LIST
GENERAL ARRANGEMENT, FOUNDATION & COIL FABRICATION DRAWING LIST IS AS FOLLOWS: (PREFIX ALL DRAWING NUMBERS W/ JOB NUMBER)
DRAWING NO. -1A (ELEVATION OF HEATER & TERM. END & COMPONENT LIST)
DRAWING NO. -1B (SIDE VIEW & PLAN OF UNIT)
DRAWING NO. -1C (SECTIONS THRU HEATER)
DRAWING NO. -1D (DETAILS & SECTIONS OF HEATER COMPONENTS)
DRAWING NO. -1E (ELEVATION OF LADDERS AND PLATFORMS)
DRAWING NO. -1F (PLANS OF LADDERS AND PLATFORMS)
DRAWING NO. -2A (FOUNDATION PLANS, DETAILS & SECTIONS)
DRAWING NO. -4A (CONVECTION COIL FABRICATION)
DRAWING NO. -4B (RADIANT COIL FABRICATION)
DRAWING NO. -4C (CROSSOVER COIL FABRICATION)
PROPRIETARY INFORMATION
PRIMER
TOP COAT
KERN OIL & REFINING COMPANY
LOCATION : BAKERSFIELD, CA.
UNIT : PLATFORMER
SERVICE : PLATFORMER CHARGE
EQUIP. NO. : 0535-11
P.O. NO. : 31760
REV'D PER CUSTOMER COMMENTS
THI
TULSA HEATERS INC.
GENERAL ARRANGEMENT ELEVATION
07567
07567-1A
2

APPENDIX E
Fugitive VOC Emissions Calculation Spreadsheet

Pre-project:

Component Type	Component Count	Emission Factor	Default Zero Factor	Daily Emissions	Yearly Emissions
Light Liquid Valves	61	0.00012	0.0000078 kg/hr	0.2 lbs/day	74 lbs/year
Light Liquid Threaded Connections	196	0.00008	0.0000075 kg/hr	0.4 lbs/day	157 lbs/year
Light Liquid Flanges	117	0.00019	0.00000031 kg/hr	0.6 lbs/day	215 lbs/year
Light Liquid Compressors	0	0.00047	0 kg/hr	0.0 lbs/day	0 lbs/year
Light Liquid Pumps	3	0.00242	0.000019 kg/hr	0.2 lbs/day	70 lbs/year
Light Liquid Pressure Relief Devices	0	0.00017	0 kg/hr	0.0 lbs/day	0 lbs/year
Light Liquid Others	9	0.00047	0.000004 kg/hr	0.1 lbs/day	41 lbs/year
Light Liquid Drains	3	0.00047	0.000002 kg/hr	0.0 lbs/day	14 lbs/year
Gas Valves	10	0.00020	0.0000078 kg/hr	0.1 lbs/day	20 lbs/year
Gas Threaded Connections	82	0.00013	0.0000075 kg/hr	0.3 lbs/day	105 lbs/year
Gas Flanges	28	0.00031	0.00000031 kg/hr	0.2 lbs/day	84 lbs/year
Gas Compressors	0	0.00073	0.000004 kg/hr	0.0 lbs/day	0 lbs/year
Gas Pumps	0	0.00037	0.000019 kg/hr	0.0 lbs/day	0 lbs/year
Gas Pressure Relief Devices	0	0.00026	0.000004 kg/hr	0.0 lbs/day	0 lbs/year
Gas Others	5	0.00073	0.000004 kg/hr	0.1 lbs/day	36 lbs/year
Gas Drains	0	0.00073	0 kg/hr	0.0 lbs/day	0 lbs/year
Total Fugitive Emissions				**2.2 lbs/day**	**817 lbs/year**

Post-project:

Component Type	Component Count	Emission Factor	Default Zero Factor	Daily Emissions	Yearly Emissions
Light Liquid Valves	55	0.00012	0.0000078 kg/hr	0.2 lbs/day	67 lbs/year
Light Liquid Threaded Connections	162	0.00008	0.0000075 kg/hr	0.4 lbs/day	130 lbs/year
Light Liquid Flanges	73	0.00019	0.00000031 kg/hr	0.4 lbs/day	134 lbs/year
Light Liquid Compressors	0	0.00047	0 kg/hr	0.0 lbs/day	0 lbs/year
Light Liquid Pumps	3	0.00242	0.000019 kg/hr	0.2 lbs/day	70 lbs/year
Light Liquid Pressure Relief Devices	6	0.00017	0 kg/hr	0.0 lbs/day	10 lbs/year
Light Liquid Others	12	0.00047	0.000004 kg/hr	0.2 lbs/day	55 lbs/year
Light Liquid Drains	3	0.00047	0.000002 kg/hr	0.0 lbs/day	14 lbs/year
Gas Valves	54	0.00020	0.0000078 kg/hr	0.3 lbs/day	107 lbs/year
Gas Threaded Connections	301	0.00013	0.0000075 kg/hr	1.1 lbs/day	386 lbs/year
Gas Flanges	42	0.00031	0.00000031 kg/hr	0.3 lbs/day	125 lbs/year
Gas Compressors	0	0.00073	0.000004 kg/hr	0.0 lbs/day	0 lbs/year
Gas Pumps	0	0.00037	0.000019 kg/hr	0.0 lbs/day	0 lbs/year
Gas Pressure Relief Devices	4	0.00026	0.000004 kg/hr	0.0 lbs/day	10 lbs/year
Gas Others	7	0.00073	0.000004 kg/hr	0.1 lbs/day	50 lbs/year
Gas Drains	0	0.00073	0 kg/hr	0.0 lbs/day	0 lbs/year
Total Fugitive Emissions				**3.2 lbs/day**	**1158 lbs/year**

APPENDIX F
Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

The QNEC is entered into PAS database and subsequently reported to CARB. For seasonal sources, or where the emissions differ quarter to quarter, then evaluate each pollutant for each quarter separately. The QNEC is calculated for each pollutant, for each unit, as the difference between the post-project quarterly potential to emit (PE2) and the pre-project quarterly potential to emit (PE1).

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

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Example (a): *(For year-round sources.)*
Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$PE2_{quarterly}VOC = PE2_{annual} \div 4 \text{ quarters/year}$$
$$= 2{,}316 \text{ lb/year} \div 4 \text{ qtr/year}$$
$$= 579 \text{ lb VOC/qtr}$$

$$PE1_{quarterly}VOC = PE1_{annual} \div 4 \text{ quarters/year}$$
$$= 817 \text{ lb/year} \div 4 \text{ qtr/year}$$
$$= 204 \text{ lb VOC/qtr}$$

$$QNEC = PE2_{quarterly} - PE1_{quarterly} = 375 \text{ lb VOC/qtr}$$

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO_X	258	0	258
SO_X	642	0	642
PM_{10}	321	0	321
CO	1,563	0	1,563
VOC	579	204	375

Permit #: S-37-2-8	Last Updated
Facility: KERN OIL & REFINING CO.	06/26/2013 LEONARDS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	1031.0	2568.0	1284.0	6251.0	2316.0
Daily Emis. Limit (lb/Day)	4.4	10.9	5.5	26.6	7.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	258.0	642.0	321.0	1563.0	375.0
Q2:	258.0	642.0	321.0	1563.0	375.0
Q3:	258.0	642.0	321.0	1563.0	375.0
Q4:	258.0	642.0	321.0	1563.0	375.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5	1.0	1.0		1.3
Quarterly Offset Amounts (lb/Qtr)					
Q1:	385.0	642.0	321.0		486.0
Q2:	387.0	642.0	321.0		487.0
Q3:	387.0	642.0	321.0		488.0
Q4:	387.0	642.0	321.0		488.0

APPENDIX G
BACT Guideline and Analysis

BACT guideline 1.8.1

Pollutant	Achieved in Practice (AIP) or contained in SIP	Technologically Feasible (TF)	Alternate Basic Equipment
VOC	Good Combustion Practices		
NO_x	25 ppmv @ 3% O_2 (low NO_x burners)	1. 5 ppmv @ 3% O_2 (SCR) 2. 20 ppmv @ 3% O_2 (ultra low NO_x burners or equivalent)	
SO_X	Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3 hour rolling average)		
CO	50 ppmvd@ 3% O_2		
PM_{10}	Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur		

BACT Analysis for NO_x Emissions:

Step 1 - Identify all control technologies

SJVUAPCD BACT Guideline 1.8.1 lists the following control options.

1. 5 ppmv @ 3% O_2, SCR (technologically feasible)
2. 20 ppmvd @ 3% O_2, Ultra Low NO_x burners (technologically feasible)
3. 25 ppmv @ 3% O_2 low NO_x burners (achieved-in-practice)

Step 2 - Eliminate Technologically Infeasible Options

There are no Technologically Infeasible Options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 5 ppmv @ 3% O_2 low NO_x burner/SCR
2. 20 ppmv @ 3% O_2 ultra low NO_x burner
3. 25 ppmvd @ 3% O_2 low NO_x burner (proposed by Kern)

Step 4 - Cost Effectiveness Analysis

Option #1 consists of an SCR system. KOR is proposing the use of SCR for this heater to achieve 5 ppmv-NO_x @ 3% O_2, which is the most effective control level listed as technologically feasible. Therefore, per the District's BACT Policy, a cost effective analysis is not required.

Step 5 - Select BACT

The most effective option not eliminated in step 4 is the technologically feasible level of 5 ppmvd NO_x @ 3% O_2 with the use of low NO_x burners and SCR. The District will revise BACT Guideline 1.8.1 to reflect lower NO_X levels for Rule 4320 considerations.

BACT Analysis for VOC Emissions:

Step 1 - Identify all control technologies

SJVUAPCD BACT Guideline 1.8.1 lists the following control options.

Good Combustion Practices – Achieved in Practice

Step 2 - Eliminate Technologically Infeasible Options

There are no Technologically Infeasible Options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Good Combustion Practices

Step 4 - Cost Effectiveness Analysis

The only control technology identified is achieved in practice; therefore a cost effectiveness analysis is not required.

Step 5 - Select BACT

The use of good combustion practices during operation is selected as BACT for VOC emissions.

BACT Analysis for SO_X Emissions:

Step 1 - Identify all control technologies

SJVUAPCD BACT Guideline 1.8.1 lists the following control options.

Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3 hour rolling average) – Achieved in Practice

Step 2 - Eliminate Technologically Infeasible Options

There are no Technologically Infeasible Options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3 hour rolling average)

Step 4 - Cost Effectiveness Analysis

The only control technology identified is achieved in practice; therefore a cost effectiveness analysis is not required.

Step 5 - Select BACT

The use of treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3 hour rolling average) during operation is selected as BACT for SO_X emissions. Recently adopted District Rule 4320 requires reduced SO_X levels in fuel fired equipment exhaust in order to reduce PM_{10} emissions (SO_X is a precursor to PM_{10} formation in the atmosphere). KOR has installed a Claus unit base sulfur removal system for their refinery fuel gas supply. KOR has elected to comply with Section 5.4.1.2 of this rule which restricts fuel gas sulfur content to no greater than 5 grains total S per 100 scf (~ 84 ppmv S). The ATC resulting from this project will restrict fuel gas sulfur to 5 gr-S/100 scf, thereby satisfying the BACT requirement of no more than 100 ppmv total reduced sulfur in the fuel gas. The District will revise BACT Guideline 1.8.1 to reflect lower SO_X and PM_{10} levels for Rule 4320 considerations.

BACT Analysis for CO Emissions:

Step 1 - Identify all control technologies

SJVUAPCD BACT Guideline 1.8.1 lists the following control options.

50 ppmv @ 3% O_2 – Achieved in Practice

Step 2 - Eliminate Technologically Infeasible Options

There are no Technologically Infeasible Options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

50 ppmv @ 3% O_2

Step 4 - Cost Effectiveness Analysis

The only control technology identified is achieved in practice; therefore a cost effectiveness analysis is not required.

Step 5 - Select BACT

A CO emission concentration of 50 ppmv @ 3% O_2 is selected as BACT for CO emissions.

BACT Analysis for PM_{10} Emissions:

Step 1 - Identify all control technologies

SJVUAPCD BACT Guideline 1.8.1 lists the following control options.

Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur – Achieved in Practice

Step 2 - Eliminate Technologically Infeasible Options

There are no Technologically Infeasible Options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur

Step 4 - Cost Effectiveness Analysis

The only control technology identified is achieved in practice; therefore a cost effectiveness analysis is not required.

Step 5 - Select BACT

The use of treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3 hour rolling average) during operation is selected as BACT for SO_X emissions. Recently adopted District Rule 4320 requires reduced SO_X levels in fuel fired equipment exhaust in order to reduce PM_{10} emissions (SO_X is a precursor to PM_{10} formation in the atmosphere). KOR has installed a Claus unit base sulfur removal system for their refinery fuel gas supply. KOR has elected to comply with Section 5.4.1.2 of this rule which restricts fuel gas sulfur content to no greater than 5 grains total S per 100 scf (~ 84 ppmv S). The ATC resulting from this project will restrict fuel gas sulfur to 5 gr-S/100 scf, thereby satisfying the BACT requirement of no more than 100 ppmv total reduced sulfur in the fuel gas. The District will revise BACT Guideline 1.8.1 to reflect lower SO_X and PM_{10} levels for Rule 4320 considerations.

APPENDIX H
HRA and AAQA Modeling Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Stephen Leonard – Permit Services
From:	Ester Davila – Technical Services
Date:	June 7, 2013
Facility Name:	Kern Oil and Refining Company
Location:	7724 E. Panama Lane, Bakersfield
Application #(s):	S-37-2-8
Project #:	S-1100705

A. RMR SUMMARY

RMR Summary			
Categories	**NG/Refinery Gas Boiler (Unit 2-8)**	**Project Totals**	**Facility Totals**
Prioritization Score	0.01	0.01	>1
Acute Hazard Index	0.00	0.00	0.83
Chronic Hazard Index	0.00	0.00	0.26
Maximum Individual Cancer Risk	**8.27E-09**	8.27E-09	9.996E-06*
T-BACT Required?	**No**		
Special Permit Conditions?	**No**		

*The facility has reached its maximum allowed cumulative total Individual Cancer Risk of 9.99E-6.

Proposed Permit Conditions

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

Unit # 2-8

1. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102] N
2. The stack height shall be at least 40 feet.

B. RMR REPORT

I. Project Description

Technical Services received a request on June 7, 2013, to perform an Ambient Air Quality Analysis and a Risk Management Review for the modification to a rerun unit (S-37-2) to process transmix using a hot oil heating system including a natural gas/refinery gas fired 30 MMBtu/hr reboiler-heater.

II. Analysis

For the Risk Management Review, toxic emissions from the reboiler-heater were calculated using the emission factors from the API and WSPA emission source tests (Hansell & England, 1998) for petroleum boilers and process heater using natural gas and refinery gas. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. Because the facility's total cumulative prioritization score was greater than 1.0 (see RMR Summary Table), a refined analysis was required and performed. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 2-8			
Source Type	Point	**Closest Receptor (m)**	357
Stack Height (m)	12.2	**Closest Receptor Type**	Business
Inside Diameter (m)	0.074	**Project Location Type**	Rural
Gas Exit Temperature (K)	483	**Stack Gas Velocity (m/s)**	5.6

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx, and PM_{10}; as well as the RMR. The emission rates used for criteria pollutant modeling were 1.11 lb/hr CO, 0.18 lb/hr NOx, 0.45 lb/hr SOx, and 0.23 lb/hr PM_{10}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*
Values are in µg/m³

Unit 2-8	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[1]	X	X	X	Pass
SO_x	Pass[2]	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[3]	Pass[3]
$PM_{2.5}$	X	X	X	Pass[3]	Pass[3]

*Results were taken from the attached PSD spreadsheets.
[1]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. The criteria pollutant 1-hour value passed using TIER I NO_2 NAAQS modeling.
[2]The project was compared to the 1-hour SO2 National Ambient Air Quality Standard that became effective on August 23, 2010 using the District's approved procedures.
[3]The maximum predicted concentration for emissions of these criteria pollutants from the proposed unit are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

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

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **8.27E-09**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

NOTE: The facility has reached the 10E-6 threshold.

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

Attachments:

1. RMR Request
2. Additional Information
3. Prioritization Score & Emissions Summary
4. HARP Reports
5. AAQA Summary
6. Facility Summary

APPENDIX I
Title V Compliance Certification Form

RECEIVED

FEB 17 2010

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)

[X] SIGNIFICANT PERMIT MODIFICATION
[ ] MINOR PERMIT MODIFICATION
[ ] ADMINISTRATIVE AMENDMENT

COMPANY NAME: Kern Oil and Refining Co.	FACILITY ID: S-37
1. Type of Organization:[X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name: Kern Oil & Refining Co.	
3. Agent to the Owner: n/a	

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

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

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

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

BC 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:

Bruce Cogswell
Signature of Responsible Official

2-11-10
Date

Bruce Cogswell
Name of Responsible Official (please print)

Vice President - Manufacturing
Title of Responsible Official (please print)

Mailing Address: Central Regional Office * 1990 E. Gettysburg Avenue * Fresno, California 93726-0244 * (559) 230-5900 * FAX (559) 230-6061

APPENDIX J
Draft Authority to Construct (ATC)

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-37-2-8 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: KERN OIL & REFINING CO.
MAILING ADDRESS: 7724 E PANAMA LANE
BAKERSFIELD, CA 93307-9210

LOCATION: PANAMA LN & WEEDPATCH HWY
BAKERSFIELD, CA 93307-9210

SECTION: 25 **TOWNSHIP:** 30S **RANGE:** 28E

EQUIPMENT DESCRIPTION:
MODIFICATION OF RERUN UNIT INCLUDING PRE-FLASH DRUM, FRACTIONATOR, STRIPPER, ACCUMULATOR, AND ASSOCIATED VALVES, FLANGES, AND CONNECTORS: ADD TRANSMIX UNIT INCLUDING A REBOILER HEATER WITH GLSF MIN BURNER (OR EQUIVALENT) WITH A MAXIMUM RATING OF 30 MMBTU/HR, A CRI SCR CATALYST (OR EQUIVALENT), VESSELS, AND SULFUR ADSORBERS

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. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. A non-resettable fuel meter shall be installed on the fuel line to the heater. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Heater burners shall be one of the following, or District approved equivalent: Zeeco Incorporated Model GLSF Free Jet burner or GLSF min emission burner, or Callidus Technologies Model Ultra Blue burner, LE-CSG, LE-CRG, CSG or CSGC burner, or John Zink Coolstar 200 series, Coolstar 300 series, Todd Variflame II, or Todd LCF (Coolfuel), or Maxon Low NOx Optima SLS burner. [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

6. Heater shall be equipped with a selective catalytic reduction catalyst and ammonia injection system. [District Rule 2201] Federally Enforceable Through Title V Permit

7. 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

8. 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

9. 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

10. 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

11. A component shall be considered leaking if one or more of the conditions specified in Sections 5.1.4.1 through 5.1.4.4 of Rule 4455 exist at the facility. Readings shall be taken as methane using a portable hydrocarbon detection instrument and shall be made in accordance with the methods specified in Section 6.4.1 of Rule 4455. [District Rule 4455] Federally Enforceable Through Title V Permit

12. The operator shall not use any component that leaks in excess of the allowable leak standards of Rule 4455, or is found to be in violation of the provisions specified in Section 5.1.3. A component identified as leaking in excess of an allowable leak standard may be used provided it has been identified with a tag for repair, has been repaired, or is awaiting re-inspection after repair, within the applicable time period specified within the rule. [District Rule 4455] Federally Enforceable Through Title V Permit

13. The operator shall be in violation of Rule 4455 if any District inspection demonstrates that one or more of the conditions in Sections 5.1.4 exist at the facility. [District Rule 4455] Federally Enforceable Through Title V Permit

14. Except for annual operator inspection described in Section 5.1.3.2.3, any operator inspection that demonstrates that one or more of the conditions in Section 5.1.4 exist at the facility shall not constitute a violation of Rule 4455 if the leaking components are repaired as soon as practicable but not later than the time frame specified in Rule 4455. Such components shall not be counted towards determination of compliance with the provisions of Section 5.1.4. [District Rule 4455] Federally Enforceable Through Title V Permit

15. Leaking components detected during operator inspection pursuant Section 5.1.3.2.1 that are not repaired, replaced, or removed from operation as soon as practicable but not later than the time frame specified in Rule 4455 shall be counted toward determination of compliance with the provisions of Section 5.1.4. [District Rule 4455] Federally Enforceable Through Title V Permit

16. Any operator inspection conducted annually for a component type (including operator annual inspections pursuant to Section 5.2.5, 5.2.6, 5.2.7, or 5.2.8) that demonstrates one or more of the conditions in Section 5.1.4 exist at the facility shall constitute a violation of Rule 4455 regardless of whether or not the leaking components are repaired, replaced, or removed from operation within the allowable repair time frame specified in Rule 4455. [District Rule 4455] Federally Enforceable Through Title V Permit

17. The operator shall audio-visually inspect for leaks all accessible operating pumps, compressors and Pressure Relief Devices (PRDs) in service at least once every 24 hours, except when operators do not report to the facility for that given 24 hours. Any identified leak that cannot be immediately repaired shall be reinspected within 24 hours using a portable analyzer. If a leak is found, it shall be repaired as soon as practical but not later than the time frame specified in Table 3. [District Rule 4455] Federally Enforceable Through Title V Permit

18. The operator shall inspect all components at least once every calendar quarter, except for inaccessible components, unsafe-to-monitor components and pipes. Inaccessible components, unsafe-to-monitor components and pipes shall be inspected in accordance with the requirements set forth in Sections 5.2.5, 5.2.6, and 5.2.7. New, replaced, or repaired fittings, flanges and threaded connections shall be inspected immediately after being placed into service. Components shall be inspected using EPA Method 21. [District Rule 4455] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

19. The operator may apply for a written approval from the APCO to change the inspection frequency from quarterly to annually for a component type, provided the operator meets all the criteria specified in Sections 5.2.8.1 through 5.2.8.3. This approval shall apply to accessible component types, specifically designated by the APCO, except pumps, compressors, and PRDs which shall continue to be inspected on a quarterly basis. [District Rule 4455] Federally Enforceable Through Title V Permit

20. An annual inspection frequency approved by the APCO shall revert to quarterly inspection frequency for a component type if either the operator inspection or District inspection demonstrates that a violation of the provisions of Sections 5.1, 5.2 and 5.3 of the rule exists for that component type, or the APCO issued a Notice of Violation for violating any of the provisions of Rule 4455 during the annual inspection period for that component type. When the inspection frequency changes from annual to quarterly inspections, the operator shall notify the APCO in writing within five (5) calendar days after changing the inspection frequency, giving the reason(s) and date of change to quarterly inspection frequency. [District Rule 4455] Federally Enforceable Through Title V Permit

21. The operator shall initially inspect a process PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the time of the release. To insure that the process PRD is operating properly, and is leak-free, the operator shall re-inspect the process PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the date of the release using EPA Method 21. If the process PRD is found to be leaking at either inspection, the PRD leak shall be treated as if the leak was found during quarterly operator inspections. [District Rule 4455] Federally Enforceable Through Title V Permit

22. Except for process PRD, a component shall be inspected within 15 calendar days after repairing the leak or replacing the component using EPA Method 21. [District Rule 4455] Federally Enforceable Through Title V Permit

23. Upon detection of a leaking component, the operator shall affix to that component a weatherproof readily visible tag that contains the information specified in Section 5.3.3. The tag shall remain affixed to the component until the leaking component has been repaired or replaced; has been re-inspected using EPA Method 21; and is found to be in compliance with the requirements of Rule 4455. [District Rule 4455] Federally Enforceable Through Title V Permit

24. An operator shall minimize all component leaks immediately to the extent possible, but not later than one (1) hour after detection of leaks in order to stop or reduce leakage to the atmosphere. [District Rule 4455] Federally Enforceable Through Title V Permit

25. If the leak has been minimized but the leak still exceeds the applicable leak standards of Rule 4455, an operator shall repair or replace the leaking component, vent the leaking component to a closed vent system, or remove the leaking component from operation as soon as practicable but not later than the time period specified in Table 3. For each calendar quarter, the operator may be allowed to extend the repair period as specified in Table 3, for a total number of leaking components, not to exceed 0.05 percent of the number of components inspected, by type, rounded upward to the nearest integer where required. [District Rule 4455] Federally Enforceable Through Title V Permit

26. If the leaking component is an essential component or a critical component and which cannot be immediately shut down for repairs, the operator shall minimize the leak within one hour after detection of the leak. If the leak has been minimized, but the leak still exceeds any of the applicable leak standards of Rule 4455, the essential component or critical component shall be repaired or replaced to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4455] Federally Enforceable Through Title V Permit

27. For any component that has incurred five repair actions for major gas leaks or major liquid leaks, or any combination of major gas leaks and major liquid leaks within a continuous 12-month period, the operator shall comply with at least one of the requirements specified in Sections 5.3.7.1, 5.3.7.2, 5.3.7.3, or 5.3.7.4 by the applicable deadlines specified in Sections 5.3.7.5 and 5.3.7.6. If the original leaking component is replaced with a new like-in-kind component before incurring five repair actions for major leaks within 12-consecutive months, the repair count shall start over for the new component. An entire compressor or pump need not be replaced provided the compressor part(s) or pump part(s) that have incurred five repair actions as described in Section 5.3.7 are brought into compliance with at least one of the requirements of Sections 5.3.7.1 through 5.3.7.6. [District Rule 4455] Federally Enforceable Through Title V Permit

28. The operator shall monitor process PRD by using electronic process control instrumentation that allows for real time continuous parameter monitoring or by using telltale indicators for the process PRD where parameter monitoring is not feasible. [District Rule 4455] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

29. All major components and critical components shall be physically identified clearly and visibly for inspection, repair, and recordkeeping purposes. The physical identification shall consist of labels, tags, manufacturer's nameplate identifier, serial number, or model number, or other system approved by the APCO that enables an operator or District personnel to locate each individual component. The operator shall replace tags or labels that become missing or unreadable as soon as practicable but not later than 24 hours after discovery. The operator shall comply with the requirements of Sections 6.1.4 if there is any change in the description of major components or critical components. [District Rule 4455] Federally Enforceable Through Title V Permit

30. The operator shall keep a copy of the operator management plan at the facility and make it available to the APCO, ARB and US EPA upon request. By January 30 of each year, the operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to the existing, approved operator management plan. [District Rule 4455] Federally Enforceable Through Title V Permit

31. The operator shall maintain an inspection log containing, at a minimum, 1) total number of components inspected, and total number and percentage of leaking components found by component types, 2) location, type, name or description of each leaking component, and description of any unit where the leaking component is found, 3) date of leak detection and method of leak detection, 4) for gaseous leaks, record the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak, 5) date of repair, replacement, or removal from operation of leaking components, 6) identification and location of essential component and critical components found leaking that cannot be repaired until the next process unit turnaround or not later one year after leak detection, whichever comes earlier, 7) methods used to minimize the leak from essential components and critical components that cannot be repaired until the next process unit turnaround or not later one year after leak detection, whichever comes earlier, 8) after the component is repaired or is replaced, the date of reinspection and the leak concentration in ppmv, 9) inspector's name, business mailing address, and business telephone number, and 10) the facility operator responsible for the inspection and repair program shall sign and date the inspection log certifying the accuracy of the information recorded in the log. [District Rule 4455] Federally Enforceable Through Title V Permit

32. Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, analyzer reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration. [District Rule 4455] Federally Enforceable Through Title V Permit

33. The operator shall notify the APCO, by telephone or other methods approved by the APCO, of any process PRD release described in Sections 5.4.4 and 5.4.5, and any release in excess of the reportable quantity limits as stipulated in 40 CFR, Part 117, Part 302 and Part 355, including any release in excess of 100 pounds of VOC, within one hour of such occurrence or within one hour of the time said person knew or reasonably should have known of its occurrence. [District Rule 4455] Federally Enforceable Through Title V Permit

34. The operator shall submit a written report to the APCO within thirty (30) calendar days following a PRD release subject to 6.3.1. The written report shall include 1) process PRD type, size, and location, 2) date, time and duration of the process PRD release, 3) types of VOC released and individual amounts, in pounds, including supporting calculations, 4) cause of the process PRD release, and 5) corrective actions taken to prevent a subsequent process PRD release. [District Rule4455] Federally Enforceable Through Title V Permit

35. Copies of all records shall be retained for a minimum of five (5) years after the date of an entry. Such records shall be made available to the APCO, ARB, or US EPA upon request. [District Rule 4455] Federally Enforceable Through Title V Permit

36. Measurements of gaseous leak concentrations shall be conducted according to US EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in US EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. [District Rule 4455] Federally Enforceable Through Title V Permit

37. The VOC content of exempt streams shall be determined using American Society of Testing and Materials (ASTM) D 1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 for liquids. [District Rule 4455] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

38. For exempt streams, the percent by volume liquid evaporated at 150 deg C shall be determined using ASTM D 86. [District Rule 4455] Federally Enforceable Through Title V Permit

39. Permittee shall comply with all applicable monitoring, testing, recordkeeping, and reporting requirements specified in Rule 4001 - New Source Performance Standards, including but not limited to Subparts A and Ja. [District Rule 4001] Federally Enforceable Through Title V Permit

40. Affected facilities for which construction or modification commenced after November 7, 2006, shall comply with applicable requirements of 40CFR, Subpart GGGa. [40CFR60.590a(a)] Federally Enforceable Through Title V Permit

41. Except for flares, affected facilities for which construction or modification commenced after May 14, 2007, shall comply with applicable requirements of 40 CFR, Subpart Ja. For flares, the provisions of this subpart apply only to flares which commence construction, modification, or reconstruction, after June 24, 2008. [40 CFR 60.100a(b)] Federally Enforceable Through Title V Permit

42. Operators shall not depressurize any vessel containing VOCs unless the process unit turnaround is accomplished by employing one of the following operating procedures: The organic vapors shall either be recovered, added to the refinery fuel gas system and combusted; or controlled and piped to an appropriate firebox or incinerated for combustion; or flared, until the pressure within the process vessel is as close to atmospheric pressure as is possible. All process vessels shall be depressurized into the control facilities to less than 1020 mm Hg (5 psig) before venting/opening to atmosphere. All organic compounds which emerge from a refinery process vessel during the purging of said vessel and which otherwise would be emitted to the atmosphere shall be either directed to a flare or incinerator or shall be used for fuel until such disposition of emissions is not technically feasible or is less safe than atmospheric venting. [District Rule 4454] Federally Enforceable Through Title V Permit

43. Heater shall be fired only on purchased commercial natural gas, refinery fuel gas, or any combination thereof. [District Rule 2201, 4001] Federally Enforceable Through Title V Permit

44. Sulfur content of fuel combusted in this unit shall not exceed 5 grains total sulfur per 100 standard cubic feet. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

45. All refinery fuel gas combusted in the heaters shall be monitored for H2S content by a continuous emissions monitoring (CEM) system. CEM shall be installed, calibrated, operated, and reported according to EPA guidelines as specified under 40 CFR 60, Subpart J, Specification 7, and general requirements. CEM results shall be calculated on a rolling three (3) hour basis. [District Rules 2201, 4001, Subpart Ja, 60.102a(g)(ii)] Federally Enforceable Through Title V Permit

46. Within 60 days of initial operation and at least once per year thereafter, permittee shall obtain and analyze a representative sample for total reduced sulfur of the fuel combusted in this unit. Each sample shall be analyzed for the following reduced sulfur compounds: carbon disulfide, carbonyl sulfide, dimethyl disulfide, dimethyl sulfide, hydrogen sulfide and methyl mercaptan. For each sample, permittee shall record the analytical results for total sulfur, calculated as the sum of the results for all analytes, expressed as H2S, and shall calculate and record the ratio of total sulfur to H2S. Samples shall be analysed using ASTM D6228-98, or an alternative analytical method approved in advance by the APCO. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

47. The permittee shall demonstrate continuous compliance with the sulfur content limit (as total reduced sulfur) of the fuel combusted in this unit by calculation, as the product of the fuel H2S concentration and the ratio of total sulfur to H2S, based on the most recently conducted fuel sample analysis for total sulfur. The total sulfur of the fuel shall be calculated for each one hour H2S monitoring result, and the hourly fuel sulfur values shall be averaged over a rolling three hour period to determine compliance. [District Rule 2201] Federally Enforceable Through Title V Permit

48. VOC emission rate from fugitive components associated with this emissions unit shall not exceed 3.8 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

49. Permit holder shall maintain accurate component count and resultant emissions according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-3a: 1995 EPA Protocol Refinery Correlation Equations for Refineries and Marketing Terminals. Permit holder shall update such records when new components are approved and installed. [District Rule 2201] Federally Enforceable Through Title V Permit

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50. Emission rates from the heater, except during startup and shutdown, shall not exceed any of the following: NOx (as NO2): 5 ppmv @ 3% O2 or 0.0061 lb/MMBtu, VOC: 0.0055 lb/MMBtu, PM10: 0.0076 lb/MMBtu or CO: 50 ppmv @ 3% O2. [District Rules 2201, 2520, 4301, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

51. The ammonia emissions (ammonia slip) shall not exceed 10 ppmvd @ 3% O2 over a 15 minute averaging period. [District Rule 4102]

52. The maximum annual amount of fuel combusted in this heater shall not exceed 168,962 MMBtu/year. [District Rule 2201] Federally Enforceable Through Title V Permit

53. Permittee shall record daily and annual fuel use for the heater unit. [District Rules 1080, 2201] Federally Enforceable Through Title V Permit

54. Particulate matter emissions shall not exceed 0.1 grain/dscf, 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201 and 4301] Federally Enforceable Through Title V Permit

55. The duration of each startup and shutdown period for each heater shall not exceed 12 hours and 9 hours respectively. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

56. The permittee shall record the date and the duration of each startup and each shutdown. [District Rules 4305 and 4306, and 4320] Federally Enforceable Through Title V Permit

57. The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 at least once during each month in which source testing is not performed. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing Draeger tubes or a District approved equivalent method. 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 it has been performed within the last month. [District Rules 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

58. If the NOx, CO or NH3 concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following 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 that is subject to enforcement action has occurred. 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 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

59. All NOx, CO, O2 and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and O2 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer 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 readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

60. Ammonia emission readings shall be conducted at the time the NOx, CO and O2 readings are taken. The readings shall be converted to ppmvd @ 3% O2. [District Rules 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

61. The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3, 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 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

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62. Heater exhaust stacks shall be equipped with adequate provisions facilitating the collection of gas samples consistent with EPA Test Methods. [District Rule 1081] Federally Enforceable Through Title V Permit

63. Source testing to demonstrate compliance with NOx, CO, and NH3 emission limits shall be conducted within 60 days of startup and not less than once every 12 months, except as provided below. [District Rules 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

64. Source testing to demonstrate compliance with NOx, CO, and NH3 emission limits shall be conducted not less than once every 36 months if compliance is demonstrated on two consecutive annual tests. [District Rules 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

65. If permittee fails any compliance demonstration for NOx, CO, or NH3 emission limits when testing not less than once every 36 months, compliance with NOx, CO, and NH3 emission limits shall be demonstrated not less than once every 12 months. [District Rules 4102, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

66. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

67. Compliance source testing shall be conducted under conditions representative of normal operation. [District Rule 1081] Federally Enforceable Through Title V Permit

68. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

69. 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

70. The following test methods shall be used unless otherwise approved by the APCO and EPA: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, and stack gas oxygen - EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

71. Source testing for ammonia slip shall be conducted utilizing BAAQMD method ST-1B [District Rule 1081] Federally Enforceable Through Title V Permit

72. All required source testing shall conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit

73. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results used to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520 and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

74. The operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520] Federally Enforceable Through Title V Permit

75. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rule 4305 and 4351] Federally Enforceable Through Title V Permit

76. Draeger tubes shall be used as an alternative method for measuring fuel gas H2S during scheduled maintenance or unscheduled interruptions of CEMs. Draeger tube use shall be limited to no more than 96 continuous hours and fuel gas H2S shall be checked a minimum of every two hours during scheduled maintenance or unscheduled interruptions of CEMs. Alternate method of measuring fuel gas H2S shall occur no more than 192 hours in any calendar year. [40CFR60.13(i)] Federally Enforceable Through Title V Permit

77. Operator shall maintain all records of the reason for alternative monitoring, heater fuel usage, and required fuel gas H2S monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520] Federally Enforceable Through Title V Permit

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78. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits in the following quantities: 1st quarter - 267 lb, 2nd quarter - 267 lbs, 3rd quarter - 267 lbs, and 4th quarter - 268 lbs. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201] Federally Enforceable Through Title V Permit

79. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOx emission reduction credits to offset both SOx (as SO2) and PM10 increases in emissions in the following quantities: 1st quarter - 963 lbs, 2nd quarter - 963 lbs, 3rd quarter - 963 lbs, and 4th quarter - 963 lbs. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201] Federally Enforceable Through Title V Permit

80. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits in the following quantities: 1st quarter - 374 lbs, 2nd quarter - 375 lbs, 3rd quarter - 375 lbs, and 4th quarter - 375 lbs. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201] Federally Enforceable Through Title V Permit

81. ERC Certificate Numbers S-2882-1, N-878-2, N-879-2, S-2653-2, and S-2387-5 (or a certificate split from these 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