San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

APR 07 2016

Mr. Jeffrey Beecher
Tricor Refining LLC
1134 Manor St
Bakersfield, CA 93308

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-44
Project # 1153979

Dear Mr. Beecher:

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. The project authorizes modification of a refinery heater.

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,

Arnaud Marjollet
Director of Permit Services

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Heater Burner Replacement

Facility Name:	Tricor Refining LLC	Date:	March 11, 2016
Mailing Address:	1134 Manor St Bakersfield, CA 93308	Engineer:	Richard Edgehill
		Lead Engineer:	Richard Karrs
Contact Person:	Jeffrey T. Beecher		
Telephone:	(661) 393-7110		
Fax:	(661) 393-1601		
E-Mail:	jeffb@sjr.com		
Application #(s):	S-44-4-19		
Project #:	1153979		
Deemed Complete:	November 23, 2015		

I. Proposal

Tricor Refining LLC (Tricor) has requested an Authority to Construct (ATC) permit for retrofit of a 5.0 MMBtu/hr refinery heater (Heater # 21) currently in dormant status with installation of a ultra-low NOx burner (Clear Sign) with guaranteed NOx emissions of 6 ppmv @ 3% O_2 burner, and increase in heat input rating to 15 MMBtu/hr, and removal of dormant status. Additionally, the following Specific Limiting Condition (SLC), applicable to Heaters #11, #21, and #31, will apply only to Heaters #11 and #31.

Heaters #11, ~~#21,~~ and #31 shall not be fired at greater than 4.5 MMBtu/hr ~~for all three heaters.~~ (combined for the two heaters). [District Rule 2201] Y

Disposition of Outstanding ATCs

There are no outstanding ATCs for S-44-4. Current PTO S-44-4-16 is included in **Attachment I.**

Tricor received their Title V Permit on December 31, 2002. This modification can be classified as a Title V Significant Modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Tricor must apply to administratively amend their Title V permit.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (6/16/11)

Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (3/17/05)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at 1134 Manor Street in Bakersfield, CA. There is no increase in emissions associated with this project. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

From project 1075914

Oildale Energy, LLC (facility S-73) operates a gas turbine engine driven-cogeneration system which supplies electricity to the Tricor Refinery and to the local power grid. Recovered heat from the cogeneration system is also used by Tricor Refining in each of the refinery processes via an enclosed system of fluid and heat exchangers. As a result, Tricor normally does not need to fire any of process heaters/boilers S-44-1, -2, -3, -4, -5, -6 & -13 at the refinery. A single process heater is operated when a heat exchanger which transfers heat from the cogeneration unit heat transfer fluid to a specific refinery process develops a leak or other problem and must be isolated from the rest of the heat transfer system.

The utility fractionator S-44-4 removes sulfur from various products. The utility fractionator is a smaller version of the crude oil fractionation plant and is generally used to supplement plant S-44-1 and to re-run crude and other off-spec stocks from other processes at the refinery. When it operates, Standby Heater # 21 provides process heat for the fractionator in the event that heat from the cogeneration unit is not available.

Standby Heater #21 is currently a non-compliant Rule 4307 Dormant Emissions Unit (DEU).

Proposed Modifications

Standby Heater # 21 will be retrofitted with a Clear Sign burner with guaranteed NOx emissions of 6 ppmv @ 3% O_2. The heat input rating will be increased to 15 MMBtu/hr. The

unit will no longer be dormant. Combined heat input for Heaters #11 and #31 will be limited to 4.5 MMBtu/hr (SLC).

V. Equipment Listing

Pre-Project Equipment Description:

S-44-4-16: DORMANT 4.5 MMBTU/HR LUBE OIL FINISHING PLANT - UTILITY FRACTIONATOR INCLUDING THREE ATMOSPHERIC COLUMN NOS. D-11, D-21, & D-31, STANDBY HEATER NOS. 11, 21, & 31, AND HEAT OIL EXCHANGER NOS. E 551, E-552, & E-553

Proposed Modification:

S-44-4-19: MODIFICATION OF DORMANT 4.5 MMBTU/HR LUBE OIL FINISHING PLANT - UTILITY FRACTIONATOR INCLUDING THREE ATMOSPHERIC COLUMN NOS. D-11, D-21, & D-31, STANDBY HEATER NOS. 11, 21, & 31, AND HEAT OIL EXCHANGER NOS. E 551, E-552, & E-553: INSTALL CLEARSIGN DUPLEX BURNER ARCHITECTURE IN HEATER #21, INCREASE RATING OF HEATER #21 AND SLC TO 15 MMBTU/HR, REDUCE NOX TO 6 PPMV @ 3% O2, REMOVE DORMANT STATUS, REVISE SLC TO INCLUDE ONLY HEATERS #11 & #31

Post Project Equipment Description:

S-44-4-19: 15 MMBTU/HR LUBE OIL FINISHING PLANT - UTILITY FRACTIONATOR INCLUDING THREE ATMOSPHERIC COLUMN NOS. D-11, D-21, & D-31, 15 MMBTU/HR HEATER # 21, STANDBY HEATER NOS. 11 & 31, AND HEAT OIL EXCHANGER NOS. E 551, E-552, & E-553

VI. Emission Control Technology Evaluation

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

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.

Manufacturer's Information on the proposed Clear Sign Burner is included in **Attachment II**.

VII. General Calculations

A. Assumptions

- To streamline emission calculations, PM2.5 emissions are assumed to be equal to PM10 emissions. Only if needed to determine if a project is a Federal Major Modification for PM2.5 will specific PM2.5 emission calculations be performed.
- Combined heat input to Heaters #11 and # 31 will be limited to 4.5 MMBtu/hr.
- Heaters #11 and #31 and not being modified – Rule 2201 is not applicable. Therefore, NSR analysis of these units is not relevant.
- The emissions increase for BACT and offsets purposes are post-project emissions from Heater # 21 which is deleted from the SLC. The combined emissions limit for Heaters #11 and #31, which are not being modified, does not change with the project.

B. Emission Factors

Pre-Project Emission Factors (EF1)

EF1s are listed in the table below.

Heaters #11, #21, and #31

Pollutant	Pre-Project Emission Factors (EF1)			Source
NO_X	100 lb-NO_X/MMscf	0.1 lb-NO_X/MMBtu	100 ppmvd NO_X (@ 3%O_2)	Current Permit
SO_X	2.85 lb-SO_X/MMscf	0.00285 lb-SO_X/MMBtu		District Policy APR 1720
PM10	7.6 lb-PM10/MMscf	0.0076 lb-PM10/MMBtu		Current Permit or AP-42 (07/98) Table 1.4-2
CO	84 lb-CO/MMscf	0.0840 lb-CO/MMBtu	115 ppmvd CO (@ 3%O_2)	Current Permit or AP-42 (07/98) Table 1.4-1
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmvd VOC (@ 3%O_2)	Current Permit or AP-42 (07/98) Table 1.4-2

Post-Project Emission Factors (EF2)

EF2s = EF1s for Heaters #11 and #31.

Heater #21

Pollutant	Post-Project Emission Factors (EF2)			Source
NO_X	7 lb-NO_X/MMscf	0.007 lb-NO_X/MMBtu	6 ppmvd NO_X (@ 3%O_2)	Applicant's data
SO_X	2.85 lb-SO_X/MMscf	0.00285 lb-SO_X/MMBtu		District Policy APR 1720
PM10	7.6 lb-PM10/MMscf	0.0076 lb-PM10/MMBtu		Applicant's data or AP-42 (07/98) Table 1.4-2
CO	37 lb-CO/MMscf	0.037 lb-CO/MMBtu	50 ppmvd CO (@ 3%O_2)	Applicant's data or AP-42 (07/98) Table 1.4-1
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmvd VOC (@ 3% O_2)	Applicant's data or AP-42 (07/98) Table 1.4-2

C. Calculations

1. Pre-Project Potential to Emit (PE1)

S-44-4 (Heaters # 11, # 21, and # 31 individual or combined)

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO_X	0.100	4.5	24	10.8
SO_X	0.00285	4.5	24	0.3
PM_{10}	0.0076	4.5	24	0.8
CO	0.084	4.5	24	9.1
VOC	0.0055	4.5	24	0.6

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO_X	0.100	4.5	8,760	3,942
SO_X	0.00285	4.5	8,760	112
PM_{10}	0.0076	4.5	8,760	300
CO	0.084	4.5	8,760	3,311
VOC	0.0055	4.5	8,760	217

PE1		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	10.8	3,952
SO_X	0.3	112
PM_{10}	0.8	300
CO	9.1	3,311
VOC	0.6	217

2. Post Project Potential to Emit (PE2)

S-44-4 (Heaters # 11 and # 31 combined SLC emissions)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_X	0.100	4.5	24	10.8
SO_X	0.00285	4.5	24	0.3
PM_{10}	0.0076	4.5	24	0.8
CO	0.084	4.5	24	9.1
VOC	0.0055	4.5	24	0.6

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_X	0.100	4.5	8,760	3,942
SO_X	0.00285	4.5	8,760	112
PM_{10}	0.0076	4.5	8,760	300
CO	0.084	4.5	8,760	3,311
VOC	0.0055	4.5	8,760	217

Heater #21

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_X	0.007	15	24	2.5
SO_X	0.00285	15	24	1.0
PM_{10}	0.0076	15	24	2.7
CO	0.037	15	24	13.3
VOC	0.0055	15	24	2.0

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_X	0.007	15	8,760	920
SO_X	0.00285	15	8,760	374
PM_{10}	0.0076	15	8,760	999
CO	0.037	15	8,760	4,862
VOC	0.0055	15	8,760	723

S-44-4 (SLC emissions from Heaters #11 and #31 and emissions from Heater #21)

PE2		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	10.8 + 2.5 = 13.3	3,942 + 920 = 4,862
SO_X	0.3 +1.0 = 1.3	112 + 374 = 486
PM_{10}	0.8 + 2.7 = 3.5	300 + 999 = 1,299
CO	9.1 + 13.3 = 22.4	3,311 + 4,862 = 8,173
VOC	0.6 + 2.0 = 2.6	217 + 723 = 940

Emissions profiles are included in **Attachment III.**

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

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

The SSPE1 can be calculated by adding the PE1 from all units with valid ATCs or PTOs and the sum of the ERCs that have been banked at the source and which have not been used on-site ($Total_{ERC}$).

$SSPE1_{Total} = SSPE1_{Permit\ Unit} + Total_{ERC}$

The facility has no ERCs and no outstanding ATCs. The SSPE1 presented below is calculated using the District's SSPE calculator (2/9/16)

SSPE1 (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	116,956	52,543	36,623	224,974	65,398

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

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

SSPE2 (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	116,956	52,543	36,623	224,974	65,398
PTO S-44-4-16	-3,942	-112	-300	-3,311	-217
ATC S-44-4-19	4,862	486	1,299	8,173	940
SSPE2	117,876	52,917	37,622	229,836	66,121

5. Major Source Determination

Rule 2201 Major Source Determination:

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

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

Rule 2201 Major Source Determination (lb/year)						
	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO	VOC
SSPE1	116,956	52,543	36,623	36,623	224,974	65,398
SSPE2	117,876	52,917	37,622	37,622	229,836	66,121
Major Source Threshold	20,000	140,000	140,000	200,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes	Yes

Note: PM2.5 assumed to be equal to PM10

As seen in the table above, the facility is an existing Major Source for NOx, CO, and VOC and is not becoming a Major Source for SOx and PM10 (or PM2.5) as a result of this 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)(iii). Therefore the PSD Major Source threshold is 100 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Estimated Facility PE before Project Increase	58	33	26	112	18	18
PSD Major Source Thresholds	100	100	100	100	100	100
PSD Major Source ? (Y/N)	N	N	N	Y	N	N

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

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

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

As discussed in the assumptions section, post-project emissions from Heater #21 are considered new for offsets purposes. BE = 0.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is a major source for NOx and VOCs, the project's PE2 (Heater #21) is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2* (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO_x	920	50,000	No
SO_x	374	80,000	No
PM_{10}	999	30,000	No
VOC	723	50,000	No

*PE2 from Heater #21 only

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

8. Federal Major Modification

District Rule 2201, Section 3.17 defines Federal Major Modification the same as "Major Modification" as defined by 40 CFR 51.165 and part D of Title I of the CAA. Section 3.17 also states that a SB 288 Major Modification is not a Federal Major Modification if the emissions increase for the project or the net emissions increase for the facility (calculated pursuant to 40 CFR 51.165 (a) (2) (ii) (B) through (D) and (F)) does not result in a significant increase as defined by Rule 2201 Table 3-1 or the modification does not cause facility wide emissions to exceed previously established plant wide applicability limit (PAL).

Since this facility is not a Major Source for SOx and PM10, this project does not constitute a Federal Major Modification for these air contaminants

<u>NOx</u>

For determination whether a project has a significant increase the project emissions increase is first calculated. The project emissions increase for each pollutant is the projected actual emissions (PAE) and the baseline actual emissions (BAE).

Where there is no increase in design capacity or potential to emit, the PAE are equal to the annual emissions rate at which the unit is projected to emit in any one year selected within 5 years after the unit resumes normal operation (10 years for existing units with an increase in design capacity or potential to emit). If there is no increase in design capacity PAE cannot exceed PE1.

Applicant has proposed an increase in design capacity from 4.5 MMBtu/hr to 15 MMBtu/hr. Heater # 21 has been dormant for the last two years and BAE = 0.

PAE is assumed to be PE2 for Heater #21 since the other heaters (#11 and #31) included in the SLC are not expected to be used in the near future (applicant email).

Emissions Increase = PAE – BAE
= PAE
= PE2

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO_x*	920	0	Yes
VOC	723	0	Yes

*If there is any emission increases in NO_x or VOC, this project is a Federal Major Modification and no further analysis is required.

As demonstrated in the preceding table, this project does constitute a Federal Major Modification.

Federal Offset quantities are calculated below:

Federal Offset Quantities:
The Federal offset quantity is only calculated only for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit times the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC.

Only list pollutants for which the project is a Federal Major Modification and delete other pollutants. The calculated Federal offset quantity is entered into the Major Modification tracking spreadsheet under the heading "Federal Offset Quantity"

NOx **Federal Offset Ratio** **1.5**

Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
S-44-4	0	920	920
			0
			0
			0
		Net Emission Change (lb/year):	920
		Federal Offset Quantity: (NEC * 1.5)	1,380

VOC | Federal Offset Ratio 1.5

Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
S-44-4	0	723	723
			0
			0
			0
		Net Emission Change (lb/year):	723
		Federal Offset Quantity: (NEC * 1.5)	1,085

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)

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10
- Lead
- Fluorides
- Sulfuric acid mist
- Hydrogen sulfide (H2S)
- Total reduced sulfur (inlcuding H2S)
- Reduced sulfur compounds
- Municipal waste combustor organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans): 3.2×10^{-6} megagrams per year (3.5×10^{-6} tons per year)
- Municipal waste combustor metals (measured as particulate matter): 14 megagrams per year (15 tons per year)
- Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride): 36 megagrams per year (40 tons per year)
- Municipal solid waste landfills emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

I. Project Location Relative to Class 1 Area

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be a 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.

II. 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)					
	NO2	SO2	CO	PM	PM10
Total PE from New and Modified Units	0.5	0.2	2.4	0.5	0.5
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	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 Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC for each pollutant is shown in the table(s) below and reported in the PAS database emissions profile.

The QNEC shall be calculated as follows:

QNEC = (PE2 – BE)/4, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
PE2 = Post Project Potential to Emit for each emissions unit, lb/yr.
BE = Baseline Emissions (per Rule 2201) for each emissions unit, lb/yr.

QNEC (lb/qtr) — C-7671-16					
Pollutant	**NO_X**	**SO_X**	**PM_{10}**	**CO**	**VOC**
PE2 (lb/yr)	4,862	486	1,299	8,173	940
PE1 (lb/yr)	3,952	112	300	3,311	217
QNEC	228	94	250	1,216	181

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

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

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

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

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

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

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

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

AIPE = PE2 – HAPE

Where,
AIPE = Adjusted Increase in Permitted Emissions, (lb/day)
PE2 = Post-Project Potential to Emit, (lb/day)
HAPE = Historically Adjusted Potential to Emit, (lb/day)
HAPE = PE1 x (EF2/EF1)

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

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

AIPE = PE2 – (PE1 * (EF2 / EF1))

As stated in the Assumptions Section, PE1 = 0 for Heater #21.

S-44-4 Heater #21

PE2		
	PE2 = AIPE (lb/day)	BACT?
NO_X	2.5	Yes
SO_X	1.0	No
PM_{10}	2.7	Yes
CO	13.3	Yes
VOC	2.0	No

As demonstrated above, the AIPE is greater than 2.0 lb/day for NOx, PM10, and CO Therefore, BACT is triggered for modification purposes for these air contaminants.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does constitute a Federal Major Modification. Therefore, BACT is triggered for Heater #21 for all pollutants which there is an emissions increase of > 0.5 lb/day (NOx, SOx, PM_{10}, CO, VOC).

2. BACT Guideline

There are no current BACT Guidelines applicable to the refinery heater which have not been rescinded and replaced by the requirements of District Rule 4320 for NOx, SOx, PM_{10}, CO, and VOC.

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 **Attachment IV**), BACT has been satisfied with the following:

Steady State

NO_X: 6 ppmvd @ 3% O_2

SO_X and PM10: Natural gas containing a sulfur content not exceeding 1.0 gr S/100 scf.
CO: 50 ppmvd @ 3% O_2 and natural gas fuel
VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE2	117,876	52,917	37,622	229,836	66,121
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_X, PM_{10}, CO, and VOC. Therefore offset calculations will be required for this project.

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

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

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

BE = PE1 for:

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

otherwise,

BE = HAE

There is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

NOx

BE = 0 for NOx.

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

PE2 (NO_X) = 920 lb/year
BE (NO_X) = 0 lb/year
ICCE = 0 lb/year

The project is a Federal Major Modification and therefore the correct offset ratio for NO_x and VOCs is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of NO_X ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([920 – 0] + 0) x 1.5
= 920 x 1.5
= 1,380 lb NO_X/year

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

Quarterly offsets required (lb/qtr) = (1,380 lb NO_X/year) ÷ (4 quarters/year)
= 345 lb/qtr

Therefore the appropriate quarterly emissions to be offset are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
345	345	345	345	1,380

The applicant has stated that the facility plans to use ERC certificate S-3461-2 to offset the increases in NO_X emissions associated with this project. The above certificate has available quarterly NO_X credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-3461-2	1425	1689	1612	1776

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

$\underline{PM_{10}}$

BE = 0 for PM_{10}. Offsets can be determined as follows:

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

PE2 (PM_{10}) = 999 lb/year
BE (PM_{10}) = 0 lb/year
ICCE = 0 lb/year

The site of reduction for the designated ERC (Alon Refinery, Rosedale Highway, Bakersfield) is within 15 miles of the Tricor Refinery and source S-44 is not major for PM10. The correct offset ratio is 1.2:1.

The amount of PM10 ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([999 – 0] + 0) x 1.2
= 999 x 1.2
= 1,199 lb PM_{10}/year

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

Quarterly offsets required (lb/qtr) = (1,199 lb PM10/year) ÷ (4 quarters/year)
= 299.75 lb/qtr

As shown in the calculation above, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and X ÷ 4 = Y.z)				
Value of z	Quarter 1	Quarter 2	Quarter 3	Quarter 4
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

Therefore the appropriate quarterly emissions to be offset are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
299	300	300	300	1199

The applicant has stated that the facility plans to use ERC certificate S-3465-5 to offset the increases in PM10 emissions associated with this project. The above certificate has available quarterly PM10 credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-3465-5	5548	5771	4951	5990

As seen above, the facility has sufficient credits to fully offset the quarterly PM10 emissions increases associated with this project.

VOCs

BE = 0 for VOC. Offsets can be determined as follows:

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

PE2 (VOC) = 723 lb/year
BE (VOC) = 0 lb/year
ICCE = 0 lb/year

The project is a Federal Major Modification and therefore the correct offset ratio for VOCs is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of VOCs ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([723 – 0] + 0) x 1.5
= 723 x 1.5
= 1085 lb VOCs/year

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

Quarterly offsets required (lb/qtr) = (1085 lb VOCs/year) ÷ (4 quarters/year)
= 271.25 lb/qtr

Therefore the appropriate quarterly emissions to be offset are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
271	271	271	272	1085

The applicant has stated that the facility plans to use ERC certificate S-3210-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-3210-1	33,767	28,482	32,565	37,850

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

Proposed Rule 2201 (offset) Conditions:

{GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_X emission reduction credits for the following quantity of emissions: 1st quarter - 345 lb, 2nd quarter - 345 lb, 3rd quarter - 345 lb, and fourth quarter - 345 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

{GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 299 lb, 2nd quarter - 300 lb, 3rd quarter - 300 lb, and fourth quarter - 300 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. SOx ERCs may be used for PM10 offsets at a 1.0 interpollutant offset ratio.[District Rule 2201]

{GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 271 lb, 2nd quarter - 271 lb, 3rd quarter - 271 lb, and fourth quarter - 272 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

ERC Certificate Numbers S-3210-1, S-3461-2, and S-3465-5 (or certificates split from this certificate) 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. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
c. Any project which results in the offset thresholds being surpassed, and/or
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.
e. Any project which results in a Title V significant permit modification

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

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes. The project is a Federal Major Modification and therefore public notice is required for Federal Major Modification purposes.

b. PE > 100 lb/day

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

c. Offset Threshold

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

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_X	116,956	117,876	20,000 lb/year	No
SO_X	52,543	52,917	54,750 lb/year	No
PM_{10}	36,623	37,622	29,200 lb/year	No
CO	224,974	229,836	200,000 lb/year	No
VOC	65,398	66,121	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	117,876	116,956	920	20,000 lb/year	No
SO_x	52,917	52,543	374	20,000 lb/year	No
PM_{10}	37,622	36,623	999	20,000 lb/year	No
CO	229,836	224,974	4,862	20,000 lb/year	No
VOC	66,121	65,398	723	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.

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V Significant Modification. Therefore, public noticing for Title V Significant Modifications is required for this project.

2. Public Notice Action

As discussed above, this project is a Title V Significant Modification. Therefore, public notice will not be required for this project.

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

Emissions from standby Heater #21 shall not exceed any of the following limits: 0.007 lb-NOx/MMBtu, 0.037 lb-CO/MMBtu, 0.0055 lb-VOC/MMBtu, 0.0076 PM10/MMBtu, or 0.00285 lb-SOx/MMBtu. [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

Startup source testing will be required for Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

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 boiler 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. No additional monitoring is required.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition(s) are listed on the permit to operate:

The applicant will also be required to keep records of all of the parameters that are required by the Rule 4305 alternate monitoring requirements.

The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records shall also include a description of any corrective action taken to maintain the emissions in the acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made readily available for District inspection upon request. [District Rules 1070, 2201, 2520, 9.4.2, 4305, and 4320] Y

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to **Attachment V** of this document for the AAQA summary sheet.

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

The proposed location is in an attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this project does constitute a Federal Major Modification, therefore this requirement is applicable. Tricor's Compliance Certification is included in **Attachment VI**.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a new burner in a refinery heater and to increase the heat input rating.

Since the project will provide a new and larger burner to be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

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

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."
The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. The Title V Compliance Certification form is included in **Attachment VI**.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60 Subpart Ja – Standards of Performance for Petroleum Refineries

Refinery Heater # 21 is a fuel gas combustion device that is being modified and therefore is subject to the Subpart Ja applicable requirements. The Subpart Ja sulfur dioxide standard (60.102a(g)(1)) is 20 ppmv SO_2 (dry basis, corrected to 0-percent excess air) on a 3 hour rolling average or 8 ppmv SO_2 (dry basis, corrected to 0-percent excess air) determined daily on a 365 successive calendar day rolling average or fuel gas that contains H_2S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis. The heater combusts PUC-regulated natural gas and therefore compliance with the above limits is expected.

Heater #21 is not rated over 40 MMBtu/hr and therefore is not subject to the NOx emission limits under Subpart Ja (60.102a(g)(2)).

Compliance with the subpart is expected.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than

Ringelmann 1 (or 20% opacity). As the IC engine is fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Also, based on past inspections of the facility continued compliance is expected.

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Attachment V**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-44-4-19	0.0467 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.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.
F-Factor for NG: 8,578 dscf/MMBtu at 60 °F
PM_{10} Emission Factor: 0.005 lb-PM_{10}/MMBtu
Percentage of PM as PM_{10} in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%

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

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

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

Therefore, compliance with the requirements of this rule is expected.

Rule 4301 Fuel Burning Equipment

Rule 4301 limits air contaminant emissions from fuel burning equipment as defined in the rule. Section 3.1 defines fuel burning equipment as "any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer".

Section 5.0 gives the requirements of the rule.

A person shall not discharge into the atmosphere combustion contaminants exceeding in concentration at the point of discharge, 0.1 grain per cubic foot of gas calculated to 12% of carbon dioxide at dry standard conditions.
A person shall not build, erect, install or expand any non-mobile fuel burning equipment unit unless the discharge into the atmosphere of contaminants will not and does not exceed any one or more of the following rates:

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO_2)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO_2)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

District Rule 4301 Limits			
Unit	**NO_2**	**Total PM**	**SO_2**
S-44-4-0 (lb/hr)	0.007 x 15 = 0.11	0.0076 x 15 = 0.11	0.00285 x 15 MMBtu/hr = 0.04
Rule Limit (lb/hr)	140	10	200

The particulate emissions from the boiler will not exceed 0.1 gr/dscf at 12% CO2 or 10 lb/hr. Further, the emissions of SOx and NOx will not exceed 200 lb/hr or 140 lb/hr, respectively.

Therefore, compliance with the requirements of this rule is expected.

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

The unit is natural gas-fired with a maximum heat input of 15.75 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2.*

In addition, the unit is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3.*

Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4320 requirements will satisfy requirements of District Rule 4305.

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

The unit is natural gas-fired with a maximum heat input of 15.75 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3.*

Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4306 requirements, compliance with District Rule 4320 requirements will satisfy requirements of District Rule 4306.

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

This rule limits NOx, CO, SO_2 and PM_{10} emissions from boilers, steam generators and process heaters rated greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NOx emitted over the previous year.

Heater #21 is rated at greater than 5 MMBtu/hr and is subject to this rule.

Section 5.1 NOx Emission Limits

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

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

Section 5.2.1 states that on and after the indicated Compliance Deadline, units shall not be operated in a manner which exceeds the applicable NOx limit specified in Table 1 of this rule, shown below. The compliance limit for CO is 400 ppmv.

Table 1 NOx Emission Limits (continued)			
Category	NOx Limit	Authority to Construct	Compliance Deadline
D. Refinery units			
1. Units with a total rated heat input > 5.0 MMBtu/hr to ≤ 20.0 MMBtu/hr	a) Standard Schedule 9 ppmv or 0.011 lb/MMBtu; or	July 1, 2011	July 1, 2012
	b) Enhanced Schedule 6 ppmv or 0.007 lb/MMBtu	January 1, 2013	January 1, 2014

The proposed NOx and CO emissions limits are 6 ppmv NOx @ 3% O_2 and 50 ppmv CO @ 3% O_2.

Therefore, compliance with the emissions limits of Section 5.2 of District Rule 4320 is expected.

A permit condition listing the emissions limits will be listed on permit as shown in the DEL section above.

Section 5.4 Particulate Matter Control Requirements

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, 2) limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic, 3) install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O2 or 4) refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

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

Section 5.6, Startup and Shutdown Provisions

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

Applicant has not requested startup and shutdown provisions:

Section 5.7, Monitoring Provisions

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

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

{4063} The permittee shall monitor and record the stack concentration of NO_X, CO, and O2 at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the same calendar month. [District Rules 4305, 4306, and 4320]

{4064} If either the NO_X or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

{4065} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320]

{4066} The permittee shall maintain records of: (1) the date and time of NO_X, CO, and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOX and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

5.7.6 Monitoring SOx Emissions

Section 5.7.6.1 Operators complying with Sections 5.4.1.1 or 5.4.1.2 shall provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit To Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2.

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

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

The heaters are fired on PUC-regulated natural gas.

Applicant is required to provide the following information for compliance:

Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type of fuel combusted. [District Rule 2520, 9.3.2 and 40 CFR 60.48c(g)] Y

Section 5.8, Compliance Determination

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

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

Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Y

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

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

Section 6.1 Recordkeeping

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

Section 6.2 Test Methods

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

NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305 and 4306] Y

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

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

Section 6.3 Compliance Testing

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

Section 6.3.1.1 Units that demonstrate compliance on two consecutive 12-month source tests may defer the following 12-month source test for up to 36 months (no more than 30 days before or after the required 36-month source test date). During the 36-month source testing interval, the operator shall tune the unit in accordance with the provisions of Section 5.5.1, and shall monitor, on a monthly basis, the unit's operational characteristics recommended by the manufacturer to ensure compliance with the applicable emission limits specified in Section 5.2. Section 6.3.1.2 Tune-ups required by Sections 5.5.1 and 6.3.1 do not need to be performed for units that operate and maintain an APCO approved CEMS or an APCO approved Alternate Monitoring System where the applicable emission limits are periodically monitored. Applicant will implement Monitoring Scheme "A" and therefore this section is not applicable.

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

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

{3466} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320]

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

Conclusion

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

Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO_2, on a dry basis averaged over 15 consecutive minutes. The heaters combust PUC-regulated natural gas (by permit condition) containing no more than 1.0 gr S/100 scf. Compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

Pursuant to California Health and Safety Code 42301.6, since this project will not result in an increase in emissions, a school notice is not required.

California Environmental Quality Act (CEQA)

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

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

Greenhouse Gas (GHG) Significance Determination

<u>District is a Lead Agency & GHG emissions increases are from the combustion of fossil fuel other than jet fuels</u>

It is determined that no other agency has prepared or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

On December 17, 2009, the District's Governing Board adopted a policy, APR 2005, *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency,* for addressing GHG emission impacts when the District is Lead Agency under CEQA and approved the District's guidance document for use by

other agencies when addressing GHG impacts as lead agencies under CEQA. Under this policy, the District's determination of significance of project-specific GHG emissions is founded on the principal that projects with GHG emission reductions consistent with AB 32 emission reduction targets are considered to have a less than significant impact on global climate change. Consistent with District Policy 2005, projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, would be determined to have a less than significant individual and cumulative impact for GHG emission.

The California Air Resources Board (ARB) adopted a Cap-and-Trade regulation as part one of the strategies identified for AB 32. This Cap-and-Trade regulation is a statewide plan, supported by a CEQA compliant environmental review document, aimed at reducing or mitigating GHG emissions from targeted industries. Facilities subject to the Cap-and-Trade regulation are subject to an industry-wide cap on overall GHG emissions. Any growth in emissions must be accounted for under that cap such that a corresponding and equivalent reduction in emissions must occur to allow any increase. Further, the cap decreases over time, resulting in an overall decrease in GHG emissions.

Under District policy APR 2025, *CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation*, the District finds that the Cap-and-Trade is a regulation plan approved by ARB, consistent with AB32 emission reduction targets, and supported by a CEQA compliant environmental review document. As such, consistent with District Policy 2005, projects complying project complying with Cap-and-Trade requirements are determined to have a less than significant individual and cumulative impact for GHG emissions.

The GHG emissions increases associated with this project result from the combustion of fossil fuel(s), other than jet fuel, delivered from suppliers subject to the Cap-and-Trade regulation. Therefore, as discussed above, consistent with District Policies APR 2005 and APR 2025, the District concludes that the GHG emissions increases associated with this project would have a less than significant individual and cumulative impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC S-44-4-1 subject to the permit conditions on the attached draft ATC in **Attachment VII**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-44-4-1	3020-02-H	19.5 MMBtu/hr	$1080.00

Attachments

I: Current PTO
II: Manufacturer's Information on Low NOx Burner
III: Emissions Profiles
IV: BACT Analysis
V: HRA/AAQA
VI: Statewide Compliance and Title V Compliance Certification Form
VII: Draft ATC

Attachment I
Current PTO

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-44-4-16 **EXPIRATION DATE:** 08/31/2016

SECTION: 07 **TOWNSHIP:** 29S **RANGE:** 28E

EQUIPMENT DESCRIPTION:
DORMANT 4.5 MMBTU/HR LUBE OIL FINISHING PLANT - UTILITY FRACTIONATOR INCLUDING THREE ATMOSPHERIC COLUMN NOS. D-11, D-21, & D-31, STANDBY HEATER NOS. 11, 21, & 31, AND HEAT OIL EXCHANGER NOS. E 551, E-552, & E-553

PERMIT UNIT REQUIREMENTS

1. No modification to heaters #11, #21, and #31 shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010] Federally Enforceable Through Title V Permit
2. The fuel supply line shall be physically disconnected from heaters #11, #21, and #31 while dormant. [District Rules 2201, 4306, 4307] Federally Enforceable Through Title V Permit
3. Heaters #11, #21, and #31 shall not be operated for any reason until Authority to Construct permits are issued approving all necessary retrofits required to comply with the applicable requirements of either Rule 4306 or 4307 and all other applicable District regulations. [District Rules 4306, 4307] Federally Enforceable Through Title V Permit
4. In the fuel line to standby heater #21, the permittee shall permanently install a calibrated orifice plate having a diameter not exceeding 0.3501 inches. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The diameter of the orifice shall be permanently stamped on the orifice plate of standby heater #21, and shall be readily accessible and viewable by District inspection staff. A copy of the orifice sizing calculations shall be made available to District inspection staff upon request. [District Rule 2201] Federally Enforceable Through Title V Permit
6. The standby heaters shall be fired solely on PUC regulated natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
7. No modifications to heaters #11 and #31 shall be performed without an Authority to Construct for that modification, except for changes specified in the following condition. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Heaters #11 and #31 shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4306 and all other applicable District regulations. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Heaters shall not be fired during operation of gas turbine engine (S-73-2) except as provided below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Gas turbine engine may operate concurrently with heaters listed in any single permit S-44-1, -2, -3, -4, or -6 provided the cumulative concurrent operation of gas turbine engine with any heaters listed in any of permit units S-44-1, -2, -3, -4, and -6 does not exceed 360 hours per year. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Permittee shall notify the District in writing within 24 hours upon firing of heaters. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Refinery produced fuel gas shall be treated in H2S scrubber listed in S-44-13. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. Refinery produced fuel gas shall be burned in C.B. boiler S-44-13 and/or solvent plant heater S-44-2. [District Rule 2201] Federally Enforceable Through Title V Permit

14. Heaters #11, #21, and #31 shall not be fired at greater than 4.5 MMBTU/hr for all three heaters. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Crude oil throughput for S-44-1 and S-44-4 combined shall not exceed 12,800 barrels per day. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Emissions from any of the standby heaters (#11, 21, 31) shall not exceed any of the following limits: 0.10 lb-NOx/MMBtu, 0.084 lb-CO/MMBtu, 0.0055 lb-VOC/MMBtu, 0.0076 PM10/MMBtu, or 0.00285 lb-SOx/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

17. Sum of annual emissions from heaters and boilers listed on permits S-44-1, -2, -3, -4, -5, -6 and -13 shall not exceed any of the the following: NOx - 94.95 tpy, CO - 154.66 tpy, VOC - 7.39 tpy, PM10 - 18.10 tpy or SOx - 30.70 tpy. [District Rule 2201] Federally Enforceable Through Title V Permit

18. Upon resuming operation of heater #21, the heater shall be tuned at least twice per calendar year (from four to eight months apart) by a qualified technician in accordance with the procedure described in Rule 4304. If the unit does not operate during a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. If the unit does not operate during a calendar year, no tune-up is required for that calendar year. [District Rule 4307] Federally Enforceable Through Title V Permit

19. Upon resuming operation of heater #21, the heater may be test-fired to verify availability for its intended use. Such test-firing is not considered operation for the purpose of requiring a tune-up provided the heater is shutdown once test firing is complete. [District Rule 4307] Federally Enforceable Through Title V Permit

20. Upon resuming operation of heaters #11 and #31, the stack concentration of NOx (as NO2), CO, and O2 shall be measured at least on a monthly basis using District approved portable analyzers. [District Rule 4305] Federally Enforceable Through Title V Permit

21. Sampling facilities for source testing shall be provided in accordance with the provisions of District Rule 1081 (amended December 16, 1993). [District Rule 1081] Federally Enforceable Through Title V Permit

22. Upon resuming operation of heaters #11 and #31, source testing to measure NOx and CO emissions shall be conducted not less than once every 12 months, except as provided below. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

23. Upon resuming operation of heaters #11 and #31, source testing to measure NOx and CO emissions shall be conducted not less than once every 36 months if compliance is demonstrated on two consecutive annual tests. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

24. Upon resuming operation of heaters #11 and #31, if permittee fails any compliance demonstration for NOx or CO emission limits when testing not less than once every 36 months, compliance with NOx and CO emission limits shall be demonstrated not less than once every 12 months. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

25. Upon resuming operation of heaters #11 and #31, source test results from an individual unit that is identical to this unit, in terms of rated capacity, operational conditions, fuel used, and control method, as approved by the APCO, will satisfy the NOx and CO source testing requirement. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

26. Upon resuming operation of heaters #11 and #31, 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

27. Upon resuming operation of heaters #11 and #31, 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

28. Upon resuming operation of heaters #11 and #31, 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

29. Upon resuming operation of heaters #11 and #31, the following test methods shall be used: 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 1081, 4305, and 4351] Federally Enforceable Through Title V Permit

30. Upon resuming operation of heaters #11 and #31, if the NOx or CO concentrations, as measured by the portable analyzer, exceed the allowable emission rate, the permittee shall notify the District and take corrective action as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed for more than one hour the allowable emission rate, the permittee shall conduct an emissions test within 60 days, utilizing District-approved test methods, to demonstrate compliance with the applicable emission limits. [District Rule 2520, 9.3.2 and 4305] Federally Enforceable Through Title V Permit

31. The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records shall also include a description of any corrective action taken to maintain the emissions in the acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made readily available for District inspection upon request. [District Rules 1070, 2520, 9.4.2 and 4305] Federally Enforceable Through Title V Permit

32. Permittee shall maintain accurate records of fuel type, annual fuel consumption, annual emissions from the heaters, and daily crude oil throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

33. Permittee shall maintain records of hours of concurrent operation of gas turbine engine S-73-2 with any heaters listed in permit units S-44-1, -2, -3, -4 & -6. [District Rule 2201] Federally Enforceable Through Title V Permit

34. 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, 9.4.2] Federally Enforceable Through Title V Permit

35. Upon resuming operation of heaters #11 and #31, the portable analyzer shall be calibrated each day of use with a two-point calibration method (zero and span) at beginning of the day. Calibration shall be performed with certified calibration gases. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

36. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(amended December 16,1993). [District Rule 1081, and Kern County Rule 108.1] Federally Enforceable Through Title V Permit

37. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type of fuel combusted. [District Rule 2520, 9.3.2 and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

38. Particulate matter emissions shall not exceed 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit

39. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by maintaining copies of fuel invoices, gas purchase contracts, or supplier certifications. [District Rule 2520, 9.3.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

40. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period (Kern County Rule 407). Compliance with this requirement may be demonstrated by maintaining copies of fuel invoices, gas purchase contracts, or supplier certifications. [District Rule 4801] Federally Enforceable Through Title V Permit

41. 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 lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rule 4305, 5.0, 8.2 and/or 4351, 8.1] Federally Enforceable Through Title V Permit

42. Nitrogen oxide (NOx) emissions from each heater shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

43. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081(amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

44. Upon resuming operation of heaters #11 and #31, annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx and CO emissions of this permit for that group, provided the selection of the representative unit(s) is approved by the APCO prior to testing. Should any of the representative units exceed the required NOx emission limits of this permit, each of the units in the group shall demonstrate compliance by emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rule 4305, 6.3.2 and 4351, 6.3] Federally Enforceable Through Title V Permit

45. Upon resuming operation of heaters #11 and #31, the following conditions must be met for representative unit(s) to be used to test for NOx and CO limits for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of the permitted value and vary 25% or less from the average of all runs, 2) all units in group are similar in terms of rated heat input (rating not to exceed 100 MMBtu/hr), make and series, operation conditions, and control method, and 3) the group is owned by a single owner and located at a single stationary source. [District Rule 4305, 6.3.2] Federally Enforceable Through Title V Permit

46. Upon resuming operation of heaters #11 and #31, all units in a group for which representative units are source for NOx and CO emissions shall have received the same maintenance and tune-up procedures as the representative unit(s). These tune-up procedures shall be completed according to District Rule 4304 (adopted October 19, 1995) and tune-up test results shall show comparable results for each unit in the group. Records shall be maintained for the each unit of the group including all preventative and corrective maintenance work done. [District Rule 4305, 6.3.2] Federally Enforceable Through Title V Permit

47. Upon resuming operation of heaters #11 and #31, all units in a group for which representative units are source tested to for NOx and CO emissions of this permit shall be fired on the same fuel type during the entire compliance period. If a unit switches for any time to an alternate fuel type (e.g. from natural gas to oil) then that unit shall not be considered part of the group and shall be required to undergo a source test for all fuel types used, within one year of the switch. [District Rule 4305, 6.3.2] Federally Enforceable Through Title V Permit

48. Upon resuming operation of heaters #11 and #31, the number of representative units source tested for NOx and CO emissions shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated, so that in 3 years, all units in the entire group will have been tested at least once. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

Attachment II
Manufacturer's Information on Low NOx Burner

ClearSign

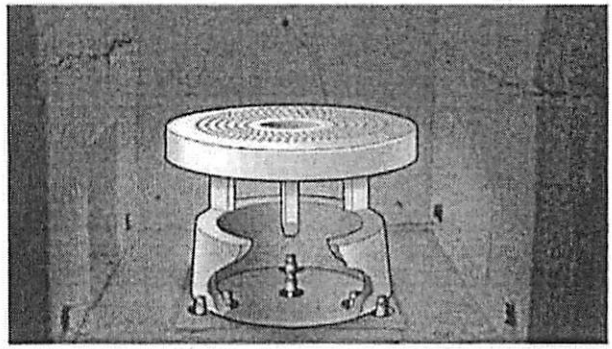
Duplex™ Burner Architecture

NO_X is a criteria pollutant regulated by the EPA and a key metric of burner performance. Recently, ClearSign demonstrated an 95% reduction in NO_X emissions (from 100ppm down to less than 5ppm) using a prototype burner based on its novel Duplex™ burner architecture in a furnace operating at a temperature of ~1600F with O2 concentrations ranging from 2.5% to 3.2%.

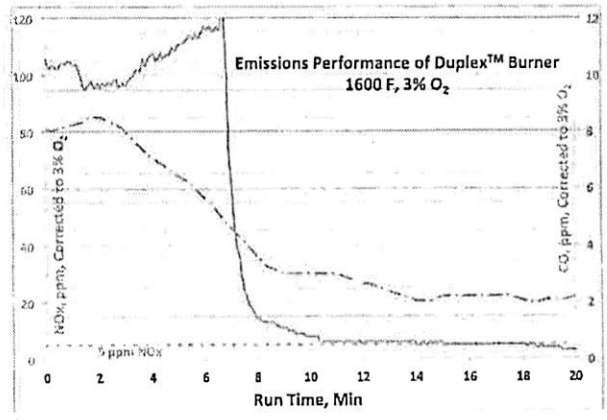
Strict new NO_X control regulations are being implemented over the next two years in several regions of the country including Texas and California. California's South Coast Air Quality Management District's Rule 1146 requires that burners produce less than 9ppm of NO_X no later than July, 2014. Industry groups anticipate that these limits will soon be further reduced to as low as 5ppm in some areas with the rest of the country to follow suit.

In our conversations with customers and partners, we hear both a sense of urgency and a great deal of uncertainty as the new regulations raise the specter of costly new challenges for combustion system owner operators.

To address this challenge, some burner and combustion system manufacturers have been able to develop systems that can achieve the NO_X targets, but inherent design tradeoffs impose high costs to energy efficiency that become prohibitive at these very low emissions levels, even with natural gas at historically low prices.



The graphic above shows the essential elements of the ClearSign duplex burner comprising a lower story tile, an upper story tile, and fuel nozzles. When the fuel is directed to the lower story tile, the resulting hot gas recirculating there anchors the flame. This allows for start-up operation where furnace temperatures and NO_X are low. Once the furnace reaches its operating temperature, the fuel is anchored to the upper-story tile. This dramatically reduces NO_X by greatly increasing the amount of entrained flue gas to dilute NO_X-forming species without any external fans or power. The greater entrainment also provides more thorough mixing and shorter flames. Since flame length is one parameter that limits the total heat release in a furnace, decreased flame length can allow for significantly greater process throughputs.



Contact Us
Phone: (206) 673-4848
Fax: (206) 299-3553
Email: info@clearsigncombustion.com
12870 Interurban Avenue South Seattle, WA 98168

www.ClearSign.com

ClearSign

The biggest cost associated with Low- and Ultra-Low NO_X burners has been the significant loss in energy efficiency that results. This loss stems directly from the combined effect of recirculating flue gas and increasing excess air to cool the flame along with a loss of turn-down because of flame instability, and can result in increases in fuel consumption of as much as 20-30%.

The market has long preferred low NO_X and Ultra-Low NO_X burners to more costly post-combustion treatment alternatives such as Selective Catalytic Reduction (SCR) systems that are more costly to install, complex to operate and consume considerable quantities of hazardous materials such as anhydrous ammonia.

However, with the new regulations on the horizon and the inability of conventional burners to meet these criteria cost effectively, many operators are being forced to consider SCR.

By contrast, ClearSign's Duplex™ Burner architecture achieves reductions in NO_X to 5 ppm without costly FGR or SCR systems. In addition, flame length is reduced by up to 80%. And, unlike other low NO_X systems, the Duplex Burner keeps oxygen at very low levels (around 3% or below), and can maintain a stable flame throughout a wide operating range. Because of these features, the Duplex burner architecture enables significant advantages in fuel efficiency and process throughput as compared to conventional Low- and Ultra-low-NO_X burners.

Our ability to combine these features represents not only a technical breakthrough, but also a significant potential breakthrough for operating economics. Our goal is to reduce NO_X to unprecedented levels without introducing the design compromises that drive cost of ownership to prohibitive levels.

In many instances, these improvements can translate to annual savings in the seven and eight figure range. Many traditional Low-NO_X burners make use of increased flame length and reduced momentum to reduce NO_X, but the resulting poor 'flame pattern' can cause flame impingement and coking. Refinery process heaters are particularly sensitive to this problem, due to the direct negative impact on product throughput and plant revenue as the firing rate must be throttled to avoid equipment damage. According to our analysis, a 3% to 7% loss in firing capacity due to poor flame pattern can cost millions of dollars annually in lost process throughput. Removing this bottleneck could improve plant profitability by between $12 and $28 million per plant, per year. This is of particularly high value because it leverages so much capital plant by increasing capacity.

Contact Us
Phone: (206) 673-4848
Fax: (206) 299-3553
Email: info@clearsigncombustion.com
12870 Interurban Avenue South Seattle, WA 98168

Attachment III
Emissions Profiles

Permit #: S-44-4-19	**Last Updated**
Facility: TRICOR REFINING, LLC	03/31/2016 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	4862.0	486.0	1299.0	8173.0	940.0
Daily Emis. Limit (lb/Day)	13.3	1.3	3.5	22.4	2.6
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	227.0	93.0	249.0	1215.0	180.0
Q2:	227.0	93.0	250.0	1215.0	181.0
Q3:	228.0	94.0	250.0	1216.0	181.0
Q4:	228.0	94.0	250.0	1216.0	181.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.2		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	345.0		299.0		271.0
Q2:	345.0		300.0		271.0
Q3:	345.0		300.0		271.0
Q4:	345.0		300.0		272.0

Attachment IV
BACT Analysis

Top Down BACT Analysis for NOx Emissions:

Step 1 - Identify All Possible Control Technologies

There is no current BACT Guideline for a refinery heater. Therefore, a project specific BACT analysis will be done. Consistent with District practice for similar projects, the Achieved-in-Practice and Technologically Feasible BACT requirements for NOx are the Rule 4320 limits listed in the table below.

Table 1 NOx Emission Limits (continued)

Category	NOx Limit	Authority to Construct	Compliance Deadline
D. Refinery units			
1. Units with a total rated heat input > 5.0 MMBtu/hr to ≤ 20.0 MMBtu/hr	a) Standard Schedule 9 ppmv or 0.011 lb/MMBtu; or	July 1, 2011	July 1, 2012
	b) Enhanced Schedule 6 ppmv or 0.007 lb/MMBtu	January 1, 2013	January 1, 2014

The following are possible control technologies:

9 ppmvd @ 3% O2 - Achieved in Practice.
6 ppmvd @ 3% O2 with SCR – Technologically Feasible

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

9 ppmvd @ 3% O2 - Achieved in Practice.
6 ppmvd @ 3% O2 with SCR – Technologically Feasible

Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant has proposed the most stringent requirement, 6 ppmvd NOx @ 3% O_2; therefore, a cost effective analysis is not required.

Step 5 - Select BACT

BACT is satisfied by the applicant's proposal to meet a NOx limit of 6 ppmvd @ 3% O_2 to be achieved with a Low NO_x burner.

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

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, 3rd Quarter 2008, (Oilfield Steam Generators (> or =20 MMBtu/hr)) identifies Achieved in Practice and Technologically Feasible BACT for Steam Generator ≥ 5 MMBtu/hr, at an oil field as follows:

Gaseous fuel - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Gaseous fuel - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for VOC

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

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

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, 3rd Quarter 2008, (Oilfield Steam Generators (> or =20 MMBtu/hr)), identifies achieved in practice and technologically feasible BACT for Steam Generator ≥ 5 MMBtu/hr, at an oil field as follows:

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

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for SOx and PM10

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

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

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, 3rd Quarter 2008, (Oilfield Steam Generators (> or =20 MMBtu/hr)), identifies achieved in practice and technologically feasible BACT for Steam Generator $\geq$ 5 MMBtu/hr, at an oil field as follows:

50 ppmv @ 3% O2 Achieved-in-Practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

50 ppmv @ 3% O2 Achieved-in-Practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for CO

50 ppmv @ 3% O2 Achieved-in-Practice

Attachment V
HRA/AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Richard Edgehill – Permit Services
From:	Cheryl Lawler – Technical Services
Date:	February 16, 2016
Facility Name:	Tricor Refining LLC
Location:	Section 7, T29S, R28E, Bakersfield
Application #(s):	S-44-4-19
Project #:	S-1153979

A. RMR SUMMARY

RMR Summary			
Categories	**Natural Gas Refinery Heater (Unit 4-19)**	**Project Totals**	**Facility Totals**
Prioritization Score	0.11	0.11	>1.0
Acute Hazard Index	0.00	0.00	0.03
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk	4.67E-08	4.67E-08	3.00E-07
T-BACT Required?	**No**		
Special Permit Requirements?	**Yes**		

Proposed Permit Requirements

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

Unit 4-19

1. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

B. RMR REPORT

I. Project Description

Technical Services received a request on February 11, 2016, to perform a Risk Management Review for a request to retrofit a 4.5 MMBtu/hr refinery heater currently in dormant status (Heater #21) with the installation of an ultra-low NOX burner and to increase the heat input rating to 15 MMBtu/hr with removal of the dormant status.

II. Analysis

Toxic emissions for the refinery heater were calculated using emission factors derived from data in the 1992 Radian Corporation report to WSPA, and then input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines. The project's prioritization score was less than 1.0 (see RMR Summary Table). However, the facility required a health risk assessment. The AERMOD model was used, with the parameters outlined below and meteorological data for 2010-2014 from Bakersfield to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 4-19			
Source Type	Point	**Location Type**	Urban
Stack Height (m)	17.07	**Closest Receptor (m)**	198
Stack Diameter (m)	0.91	**Type of Receptor**	Residential
Stack Exit Velocity (m/s)	1.52	**Max Hours per Year**	8760
Stack Exit Temp. (°K)	289	**Fuel Type**	NG
Burner Rating (MMBtu/hr)	15		

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

Unit #	NO_x (Lbs.)		SO_x (Lbs.)		CO (Lbs.)		PM_{10} (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
4-19	0.10	920	0.04	374	0.55	4862	0.11	999

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

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

*Results were taken from the attached PSD spreadsheet.
[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.
[2]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

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

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

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

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

IV. Attachments

A. RMR Request Form
B. Emissions Speciation Worksheet
C. Prioritization
D. AAQA Results
E. Facility Summary
F. AERMOD Non-Regulatory Option Checklist

Attachment VI
Statewide Compliance and Title V Compliance Certification Form

RECEIVED

OCT 19 2015

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: Tricor Refining, LLC	FACILITY ID: S-44
1. Type of Organization:[ ] Corporation [ ] Sole Ownership [ ] Government [X] Partnership [ ] Utility	
2. Owner's Name: Tricor Refining, LLC	
3. Agent to the Owner:	

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

(JLF) 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).

(JLF) 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.

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

(JLF) 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:

Joseph L. Frank — 10/19/15

Signature of Responsible Official — Date

Joseph L. Frank

Name of Responsible Official (please print)

General Manager

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

September 14, 2015

Mr. Leonard Scandura
Permit Services Manager
San Joaquin Valley Unified
Air Pollution Control District
34946 Flyover Ct.
Bakersfield, CA 93308

Subject: **ATC Application – S-44-4 Heater 21 Modification**
Federal Major Modification Compliance Certification

Dear Mr. Scandura:

I hereby certify that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

Signature

Environmental Specialist
Title

Attachment VII
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-44-4-19

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: TRICOR REFINING, LLC
MAILING ADDRESS: PO BOX 5877
BAKERSFIELD, CA 93308

LOCATION: 1134 MANOR STREET
BAKERSFIELD, CA

SECTION: 07 **TOWNSHIP:** 29S **RANGE:** 28E

EQUIPMENT DESCRIPTION:
MODIFICATION OF DORMANT 4.5 MMBTU/HR LUBE OIL FINISHING PLANT - UTILITY FRACTIONATOR INCLUDING THREE ATMOSPHERIC COLUMN NOS. D-11, D-21, & D-31, STANDBY HEATER NOS. 11, 21, & 31, AND HEAT OIL EXCHANGER NOS. E 551, E-552, & E-553: INSTALL CLEARSIGN DUPLEX BURNER ARCHITECTURE IN HEATER #21, INCREASE RATING TO 15 MMBTU/HR, REDUCE NOX TO 6 PPMV @ 3% O2, REMOVE DORMANT STATUS, AND REVISE SLC TO INCLUDE ONLY HEATERS #11 AND #31

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. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 345 lb, 2nd quarter - 345 lb, 3rd quarter - 345 lb, and fourth quarter - 345 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [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

Arnaud Marjollet, Director of Permit Services
S-44-4-19 : Mar 31 2019 2:01PM – EDGEMILR : Joint Inspection NOT Required

4. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 299 lb, 2nd quarter - 300 lb, 3rd quarter - 300 lb, and fourth quarter - 300 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. SOx ERCs may be used for PM10 offsets at a 1.0 interpollutant offset ratio. [District Rule 2201] Federally Enforceable Through Title V Permit

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 271 lb, 2nd quarter - 271 lb, 3rd quarter - 271 lb, and fourth quarter - 272 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

6. ERC Certificate Numbers S-3210-1, S-3461-2, and S-3465-5 (or certificates split from this certificate) 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

7. No modification to Heaters #11 and #31 shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010] Federally Enforceable Through Title V Permit

8. The fuel supply line shall be physically disconnected from Heaters #11 and #31 while dormant. [District Rules 2201, 4306, 4307] Federally Enforceable Through Title V Permit

9. Heaters #11 and #31 shall not be operated for any reason until Authority to Construct permits are issued approving all necessary retrofits required to comply with the applicable requirements of either Rule 4306 or 4307 and all other applicable District regulations. [District Rules 4306, 4307] Federally Enforceable Through Title V Permit

10. Heaters #11, #21, and #31shall not be fired during operation of gas turbine engine (S-73-2) except as provided below. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Gas turbine engine may operate concurrently with heaters listed in any single permit S-44-1, -2, -3, -4, or -6 provided the cumulative concurrent operation of gas turbine engine with any heaters listed in any of permit units S-44-1, -2, -3, -4, and -6 does not exceed 360 hours per year. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee shall notify the District in writing within 24 hours upon firing of heaters. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Refinery produced fuel gas shall be treated in H2S scrubber listed in S-44-13. [District Rule 2201] Federally Enforceable Through Title V Permit

14. Refinery produced fuel gas shall be burned in C.B. boiler S-44-13 and/or solvent plant Heater S-44-2. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Heaters #11 and #31 shall not be fired at greater than 4.5 MMBTU/hr combined for the two heaters. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Crude oil throughput for S-44-1 and S-44-4 combined shall not exceed 12,800 barrels per day. [District Rule 2201] Federally Enforceable Through Title V Permit

17. Standby Heaters #11 and #31 and Heater # 21 shall be fired solely on PUC regulated natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit

18. Emissions from either of the standby Heaters (#11 and 31) shall not exceed any of the following limits: 0.10 lb-NOx/MMBtu, 0.084 lb-CO/MMBtu, 0.0055 lb-VOC/MMBtu, 0.0076 PM10/MMBtu, or 0.00285 lb-SOx/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Emissions from Heater #21 shall not exceed any of the following limits: 6 ppmv NOx @ 3% O2 or 0.007 lb-NOx/MMBtu, 50 ppmv CO @ 3% O2 or 0.037 lb-CO/MMBtu, 0.0055 lb-VOC/MMBtu, 0.0076 PM10/MMBtu, or 0.00285 lb-SOx/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. Sum of annual emissions from heaters and boilers listed on permits S-44-1, -2, -3, -4, -5, -6 and -13 shall not exceed any of the the following: NOx - 94.95 tpy, CO - 154.66 tpy, VOC - 7.39 tpy, PM10 - 18.10 tpy or SOx - 30.70 tpy. [District Rule 2201] Federally Enforceable Through Title V Permit
21. Upon resuming operation of Heaters #11 and #31, the stack concentration of NOx (as NO2), CO, and O2 shall be measured at least on a monthly basis using District approved portable analyzers. [District Rule 4305] Federally Enforceable Through Title V Permit
22. Sampling facilities for source testing shall be provided in accordance with the provisions of District Rule 1081 (amended December 16, 1993). [District Rule 1081] Federally Enforceable Through Title V Permit
23. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
25. Source testing to measure NOx and CO emissions from Heater #21 while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
26. Source testing to measure NOx and CO emissions from Heater #21, while fired on natural gas, shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
27. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
29. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
30. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit
31. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
32. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
33. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
34. Upon resuming operation of Heaters #11 and #31, source testing to measure NOx and CO emissions shall be conducted not less than once every 12 months, except as provided below. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit
35. Upon resuming operation of Heaters #11 and #31, source testing to measure NOx and CO emissions shall be conducted not less than once every 36 months if compliance is demonstrated on two consecutive annual tests. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

36. Upon resuming operation of Heaters #11 and #31, if permittee fails any compliance demonstration for NOx or CO emission limits when testing not less than once every 36 months, compliance with NOx and CO emission limits shall be demonstrated not less than once every 12 months. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

37. Upon resuming operation of Heaters #11 and #31, source test results from an individual unit that is identical to this unit, in terms of rated capacity, operational conditions, fuel used, and control method, as approved by the APCO, will satisfy the NOx and CO source testing requirement. [District Rules 4305, and 4351] Federally Enforceable Through Title V Permit

38. Upon resuming operation of Heaters #11 and #31, 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

39. Upon resuming operation of Heaters #11 and #31, 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

40. Upon resuming operation of Heaters #11 and #31, 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

41. Upon resuming operation of Heaters #11 and #31, the following test methods shall be used: 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 1081, 4305, and 4351] Federally Enforceable Through Title V Permit

42. Upon resuming operation of Heaters #11 and #31, if the NOx or CO concentrations, as measured by the portable analyzer, exceed the allowable emission rate, the permittee shall notify the District and take corrective action as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed for more than one hour the allowable emission rate, the permittee shall conduct an emissions test within 60 days, utilizing District-approved test methods, to demonstrate compliance with the applicable emission limits. [District Rule 2520, 9.3.2 and 4305] Federally Enforceable Through Title V Permit

43. The permittee shall monitor and record the Heater #21 stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the same calendar month. [District Rules 4305, 4306 and 4320]

44. If either the Heater #21 NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320]

45. All Heater #21 alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320]

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46. {4318} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

47. The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records shall also include a description of any corrective action taken to maintain the emissions in the acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made readily available for District inspection upon request. [District Rules 1070, 2201, 2520, 9.4.2, 4305, and 4320] Federally Enforceable Through Title V Permit

48. Permittee shall maintain accurate records of fuel type, annual fuel consumption, annual emissions from the Heaters, and daily crude oil throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

49. Permittee shall maintain records of hours of concurrent operation of gas turbine engine S-73-2 with any Heaters listed in permit units S-44-1, -2, -3, -4 & -6. [District Rule 2201] Federally Enforceable Through Title V Permit

50. 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 Rules 2201, 2520, 9.4.2, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

51. Upon resuming operation of Heaters #11 and #31, the portable analyzer shall be calibrated each day of use with a two-point calibration method (zero and span) at beginning of the day. Calibration shall be performed with certified calibration gases. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

52. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(amended December 16,1993). [District Rule 1081, and Kern County Rule 108.1] Federally Enforceable Through Title V Permit

53. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type of fuel combusted. [District Rule 2520, 9.3.2 and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

54. Particulate matter emissions shall not exceed 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit

55. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by maintaining copies of fuel invoices, gas purchase contracts, or supplier certifications. [District Rule 2520, 9.3.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

56. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period (Kern County Rule 407). Compliance with this requirement may be demonstrated by maintaining copies of fuel invoices, gas purchase contracts, or supplier certifications. [District Rule 4801] Federally Enforceable Through Title V Permit

57. 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 lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rule 4305, 5.0, 8.2 and/or 4351, 8.1] Federally Enforceable Through Title V Permit

58. Nitrogen oxide (NOx) emissions from each heater shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2] Federally Enforceable Through Title V Permit

59. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081(amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

60. Upon resuming operation of Heaters #11 and #31, annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx and CO emissions of this permit for that group, provided the selection of the representative unit(s) is approved by the APCO prior to testing. Should any of the representative units exceed the required NOx emission limits of this permit, each of the units in the group shall demonstrate compliance by emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rule 4305, 6.3.2 and 4351, 6.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

61. Upon resuming operation of Heaters #11 and #31, the following conditions must be met for representative unit(s) to be used to test for NOx and CO limits for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of the permitted value and vary 25% or less from the average of all runs, 2) all units in group are similar in terms of rated heat input (rating not to exceed 100 MMBtu/hr), make and series, operation conditions, and control method, and 3) the group is owned by a single owner and located at a single stationary source. [District Rule 4305, 6.3.2] Federally Enforceable Through Title V Permit

62. Upon resuming operation of Heaters #11 and #31, all units in a group for which representative units are source for NOx and CO emissions shall have received the same maintenance and tune-up procedures as the representative unit(s). These tune-up procedures shall be completed according to District Rule 4304 (adopted October 19, 1995) and tune-up test results shall show comparable results for each unit in the group. Records shall be maintained for the each unit of the group including all preventative and corrective maintenance work done. [District Rule 4305, 6.3.2] Federally Enforceable Through Title V Permit

63. Upon resuming operation of Heaters #11 and #31, all units in a group for which representative units are source tested to for NOx and CO emissions of this permit shall be fired on the same fuel type during the entire compliance period. If a unit switches for any time to an alternate fuel type (e.g. from natural gas to oil) then that unit shall not be considered part of the group and shall be required to undergo a source test for all fuel types used, within one year of the switch. [District Rule 4305, 6.3.2] Federally Enforceable Through Title V Permit

64. Upon resuming operation of Heaters #11 and #31, the number of representative units source tested for NOx and CO emissions shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated, so that in 3 years, all units in the entire group will have been tested at least once. |District Rule 2520, 9.3.2| Federally Enforceable Through Title V Permit