San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAY 23 2012

Mr. David Campbell
San Joaquin Refining Company
P.O. Box 5576
Bakersfield, CA, 93388

Re: Notice of Preliminary Decision - ATC / Certificate of Conformity
Facility # S-36
Project # S-1104824

Dear Mr. Campbell:

Enclosed for your review and comment is the District's analysis of an application for Authorities to Construct for San Joaquin Refining Company at the corner of Standard and Shell Streets in Bakersfield, CA. The applicant is proposing to install a new 19.9 MW cogeneration unit and modifications to an atmospheric/vacuum crude unit, lube oil finishing plant and crude unit and/or visbreaking unit.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the Authorities to Construct will be issued to the facility with Certificates of Conformity. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

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

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

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: KR/cm

Enclosures

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAY 23 2012

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

Re: Notice of Preliminary Decision - ATC / Certificate of Conformity
Facility # S-36
Project # S-1104824

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for San Joaquin Refining Company at the corner of Standard and Shell Streets in Bakersfield, CA, which has been issued a Title V permit. San Joaquin Refining Company is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The applicant is proposing to install a new 19.9 MW cogeneration unit and modifications to an atmospheric/vacuum crude unit, lube oil finishing plant and crude unit and/or visbreaking unit.

Enclosed is the engineering evaluation of this application, along with the current Title V permit, and proposed Authorities to Construct # S-36-1-15, -37-14, -42-10 and -115-0 with Certificates of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

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

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: KR/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAY 23 2012

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

Re: **Notice of Preliminary Decision - ATC / Certificate of Conformity**
Facility # S-36
Project # S-1104824

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of an application for Authorities to Construct for San Joaquin Refining Company at the corner of Standard and Shell Streets in Bakersfield, CA. The applicant is proposing to install a new 19.9 MW cogeneration unit and modifications to an atmospheric/vacuum crude unit, lube oil finishing plant and crude unit and/or visbreaking unit.

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

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: KR/cm

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www.valleyair.org www.healthyairliving.com

Bakersfield Californian

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed issuance of Authority To Construct to San Joaquin Refining Company for its crude oil refining operation at the corner of Standard and Shell Streets in Bakersfield, California. The applicant is proposing to install a new 19.9 MW cogeneration unit and modifications to an atmospheric/vacuum crude unit, lube oil finishing plant and crude unit and/or visbreaking unit.

The analysis of the regulatory basis for these proposed actions, Project #S-1104824, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Installation of New Cogeneration Unit

Facility Name:	San Joaquin Refining Company	Date:	May 15, 2012
Mailing Address:	P.O. Box 5576	Engineer:	Kris Rickards
	Bakersfield, CA 93388	Lead Engineer:	Allan Phillips
Contact Person:	David Campbell		Joe Selgrath (EnviroTech)
Telephone:	661-327-8248		661-635-0465
E-Mail:	davidc@sjr.com		selgrath@ix.netcom.com
Application #(s):	S-36-1-15, '-37-14, '-42-10, '-115-0		
Project #:	S-1104824		
Deemed Complete:	December 1, 2010		

I. Proposal

San Joaquin Refining Company (hereafter referred to as SJR) has requested an Authority to Construct permit for the installation of one Solar Titan 250-30000S Cogeneration system with gas turbine engine (GTE), SoLoNOx (SLN) combustors, duct burner, Selective Catalytic Reduction (SCR) system and Oxidation Catalyst, and supplemental steam turbine powered electrical generator (0.5 MW). The electrical generation capacity of the entire system is 19.9 MW (nominally rated[1]). The GTE will be installed in a cogeneration configuration with a Waste Heat Recovery Unit (WHRU). The Cogeneration Unit will generate hot oil and steam with a portion of the steam directed to a 0.5 MW steam turbine powered generator. The cogeneration unit will be fired primarily on purchased natural gas (PUC quality) with refinery fuel gas and oilfield gas also included as fuel.

To mitigate emissions increases, SJR is proposing the following:

- A Specific Limiting Condition (SLC) for NO_X and CO (including units S-36-1, '-37, and '-42)
- Purchase of emission reduction credits (ERCs) for NO_X, SO_X, PM_{10}, and VOC
- Remove oil firing capability from heaters listed on permit S-36-1

SJR received their Title V Permit on February 28, 2002. This modification can be classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.29, 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. SJR must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

Outstanding ATC, S-36-1-16, authorizing replacement burners and removing oil firing capability may not be implemented (SJR has requested this ATC be issued in addition to it).

[1] "Nominally Rated" means the electrical power output the unit can achieve under the following standard set of operating conditions as specified by the International Organization for Standardization (ISO): sea level (i.e. 1 atm pressure), 59 degrees F ambient air temperature, 60% relative humidity, and a natural gas lower heating value 800 – 1,100 Btu/scf.

II. Applicable Rules

Rule 1081	Source Sampling (12/16/93)
Rule 1100	Equipment Breakdown (12/17/92)
Rule 2201	New and Modified Stationary Source Review Rule (6/10/10)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99), 40 CFR 60 Subpart GG
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (10/16/08)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4351	Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03)
Rule 4703	Stationary Gas Turbines (8/17/2006)
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 the corner of Standard and Shell street in Bakersfield, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

SJR is a heavy crude oil refinery that produces various products including asphalt and ultra low sulfur diesel. SJR proposes to use the cogeneration unit to supplement and eventually replace other oil heating and steam producing equipment used on site.

The GTE will be installed in a cogeneration configuration with a Waste Heat Recovery Unit. Heat will be recovered using a heat transfer fluid (hot oil system) and waste heat boiler. A portion of the steam will be used in an ancillary steam turbine powered electrical generator to produce 0.5 MW.

The duct burner system is provided with a separate combustion air source, which allows operation of the duct burner system if the gas turbine is shut down.

The Cogeneration unit is expected to operate 24 hours/day and 8,760 hours/year. SJR is proposing that crude heater #4 listed on S-36-1, heater LH-1 listed on S-36-37, and asphalt heater H5 listed on S-36-42 not be operated when the cogeneration unit is operating.

V. Equipment Listing

Pre-Project Equipment Description:

S-36-1-14: 79.2 MMBTU/HR ATMOSPHERIC/VACUUM CRUDE UNIT #4 WITH PREFLASH COLUMN, FRACTIONATOR, VACUUM DISTILLATION COLUMN WITH MECHANICAL VACUUM PRODUCING SYSTEM, 27 MMBTU/HR GAS/OIL/WASTE GAS FIRED NATURAL DRAFT VACUUM HEATER #VH-4 WITH THREE ZEECO CLSF 11 LOW NOX BURNERS AND 52.2 MMBTU/HR GAS/OIL FIRED NATURAL DRAFT HEATER #4 WITH ZEECO MODEL CLSF LOW NOX BURNERS

S-36-37-12: LUBE OIL FINISHING PLANT WITH 16.5 MMBTU/HR NATURAL GAS-FIRED NATURAL DRAFT EXTRACT HEATER LH-1, 12.6 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-2 WITH FGR, 12.0 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-3 WITH LOW NOX BURNERS AND FGR, ABSORBER T-1, TREATING TOWER T-2, EXTRACT DRYER T-5/T-6, MP FLASH DRUM D-5, EXPANSION DRUM D-9, BLOWDOWN DRUM D-7, AND SETTLER D-1

S-36-42-9: CRUDE UNIT AND/OR VISBREAKING UNIT INCLUDING GAS FIRED 12.6 MMBTU/HR HEATER (PERMITTED AS S-36-2), 25 MMBTU/HR NATURAL GAS FIRED VERTICAL ASPHALT HEATER H5 WITH 3 ZEECO CLSF 12 LOW NOX BURNERS, RETENTION VESSEL, AND FIVE HEATER EXCHANGERS

Proposed Modification:

S-36-1-15: MODIFICATION OF 79.2 MMBTU/HR ATMOSPHERIC/VACUUM CRUDE UNIT #4 WITH PREFLASH COLUMN, FRACTIONATOR, VACUUM DISTILLATION COLUMN WITH MECHANICAL VACUUM PRODUCING SYSTEM, 27 MMBTU/HR GAS/OIL/WASTE GAS FIRED NATURAL DRAFT VACUUM HEATER #VH-4 WITH THREE ZEECO CLSF 11 LOW NOX BURNERS AND 52.2 MMBTU/HR GAS/OIL FIRED NATURAL DRAFT HEATER #4 WITH ZEECO MODEL CLSF LOW NOX BURNERS: REMOVE OIL FIRING CAPABILITY AND LIMIT CRUDE HEATER #4 FIRING ABILITY TO PERIODS WHEN S-36-115 IS NOT OPERATING

S-36-37-14: MODIFICATION OF LUBE OIL FINISHING PLANT WITH 16.5 MMBTU/HR NATURAL GAS-FIRED NATURAL DRAFT EXTRACT HEATER LH-1, 12.6 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-2 WITH FGR, 12.0 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-3 WITH LOW NOX BURNERS AND FGR, ABSORBER T-1, TREATING TOWER T-2, EXTRACT DRYER T-5/T-6, MP FLASH DRUM D-5, EXPANSION DRUM D-9, BLOWDOWN DRUM D-7, AND SETTLER D-1: LIMIT LH-1 HEATER FIRING ABILITY TO PERIODS WHEN S-36-115 IS NOT OPERATING

S-36-42-10: MODIFICATION OF CRUDE UNIT AND/OR VISBREAKING UNIT INCLUDING GAS FIRED 12.6 MMBTU/HR HEATER (PERMITTED AS S-36-2), 25 MMBTU/HR NATURAL GAS FIRED VERTICAL ASPHALT HEATER H5 WITH 3 ZEECO CLSF 12 LOW NOX BURNERS, RETENTION VESSEL, AND FIVE HEATER EXCHANGERS: LIMIT ASPHALT HEATER H5 FIRING ABILITY TO PERIODS WHEN S-36-115 IS NOT OPERATING

Post Project Equipment Description:

S-36-1-15: 79.2 MMBTU/HR ATMOSPHERIC/VACUUM CRUDE UNIT #4 WITH PREFLASH COLUMN, FRACTIONATOR, VACUUM DISTILLATION COLUMN WITH MECHANICAL VACUUM PRODUCING SYSTEM, 27 MMBTU/HR GAS/OIL/WASTE GAS FIRED NATURAL DRAFT VACUUM HEATER #VH-4 WITH THREE ZEECO CLSF 11 LOW NOX BURNERS AND 52.2 MMBTU/HR GAS/OIL FIRED NATURAL DRAFT HEATER #4 WITH ZEECO MODEL CLSF LOW NOX BURNERS

S-36-37-14: LUBE OIL FINISHING PLANT WITH 16.5 MMBTU/HR NATURAL GAS-FIRED NATURAL DRAFT EXTRACT HEATER LH-1, 12.6 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-2 WITH FGR, 12.0 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-3 WITH LOW NOX BURNERS AND FGR, ABSORBER T-1, TREATING TOWER T-2, EXTRACT DRYER T-5/T-6, MP FLASH DRUM D-5, EXPANSION DRUM D-9, BLOWDOWN DRUM D-7, AND SETTLER D-1

S-36-42-10: CRUDE UNIT AND/OR VISBREAKING UNIT INCLUDING GAS FIRED 12.6 MMBTU/HR HEATER (PERMITTED AS S-36-2), 25 MMBTU/HR NATURAL GAS FIRED VERTICAL ASPHALT HEATER H5 WITH 3 ZEECO CLSF 12 LOW NOX BURNERS, RETENTION VESSEL, AND FIVE HEATER EXCHANGERS

S-36-115-0: 19.9 MW (NOMINAL) COGENERATION UNIT INCLUDING SOLAR TITAN MODEL 250-30000S NATURAL/REFINERY/OILFIELD GAS-FIRED TURBINE ENGINE WITH SOLONOX COMBUSTORS, LUBE OIL COOLER (HEAT EXCHANGER), SELECTIVE CATALYTIC REDUCTION, OXIDATION CATALYST, 220.8 MMBTU/HR NATURAL/REFINERY/OILFIELD GAS-FIRED DUCT BURNER WITH ZEECO MODEL GB 265 COMBUSTORS, WASTE HEAT RECOVERY UNIT WITH HOT OIL HEAT EXCHANGER, AND WASTE HEAT BOILER

VI. Emission Control Technology Evaluation

There are no changes in control methods for units S-36-1, '-37, and '-42 proposed by the applicant.

Emissions from the natural gas-fired turbine equipped with SCR include CO, NO_X, PM_{10}, SO_X, VOC, and NH_3.

The new turbine will be equipped with a SoLoNOx™ combustion system, which is Solar's version of Dry Low NO_X (DLN) combustors, and will exhaust into a SCR system and a CO and VOC Oxidation catalyst.

The turbine is equipped with a duct burner that functions to raise the temperature to increase the generation of steam in the next stage and also functions as an independently fired process heater during instances when the turbine is not operational.

NO_X is the major pollutant of concern when combusting natural gas or distillate oil. Virtually all gas turbine NO_X emissions originate as NO. This NO is further oxidized in the exhaust system or later in the atmosphere to form the more stable NO_2 molecule. There are two mechanisms by which NO_X is formed in turbine combustors: 1) the oxidation of atmospheric nitrogen found in the combustion air (thermal NO_X and prompt NO_X), and 2) the conversion of nitrogen chemically bound in the fuel (fuel NO_X).

Thermal NO_X is formed by a series of chemical reactions in which oxygen and nitrogen present in the combustion air dissociate and subsequently react to form oxides of nitrogen. Prompt NO_X, a form of thermal NO_X, is formed in the proximity of the flame front as intermediate combustion products such as HCN, H, and NH are oxidized to form NO_X. Prompt NO_X is formed in both fuel-rich flame zones and dry low NO_X (DLN) combustion zones. The contribution of prompt NO_X to overall NO_X emissions is relatively small in conventional near-stoichiometric combustors, but this contribution is an increasingly significant percentage of overall thermal NO_X emissions in DLN combustors. For this reason prompt NO_X becomes an important consideration for DLN combustor designs, and establishes a minimum NO_X level attainable in lean mixtures.

Fuel NO_X is formed when fuels containing nitrogen are burned. Molecular nitrogen, present as N_2 in some natural gas, does not contribute significantly to fuel NO_X formation. With excess air, the degree of fuel NO_X formation is primarily a function of the nitrogen content in the fuel. When compared to thermal NO_X, fuel NO_X is not currently a major contributor to overall NO_X emissions from stationary gas turbines firing natural gas.

The level of NO_X formation in a gas turbine, and hence the NO_X emissions, is unique (by design factors) to each gas turbine model and operating mode. The primary factors that determine the amount of NO_X generated are the combustor design, the types of fuel being burned, ambient conditions, operating cycles, and the power output of the turbine.

The design of the combustor is the most important factor influencing the formation of NO_X. Design parameters controlling air/fuel ratio and the introduction of cooling air into the combustor strongly influence thermal NO_X formation. Thermal NO_X formation is primarily a function of flame temperature and residence time. The extent of fuel/air mixing prior to combustion also affects NO_X formation. Simultaneous mixing and combustion results in localized fuel-rich zones that yield high flame temperatures in which substantial thermal NO_X production takes place. Injecting water or steam into a conventional combustor provides a heat sink that effectively reduces peak flame temperature, thereby reducing thermal NO_X formation. Premixing air and fuel at a lean ratio approaching the lean flammability limit (approximately 50% excess air) significantly reduces peak flame temperature, resulting in minimum NO_X formation during combustion. This is known as dry low NO_X (DLN) combustion.

Selective Catalytic Reduction systems selectively reduce NO_X emissions by injecting ammonia (NH_3) into the exhaust gas upstream of a catalyst. Nitrogen oxides, NH_3, and O_2 react on the surface of the catalyst to form molecular nitrogen (N_2) and H_2O. SCR is capable of over 90

percent NO_X reduction. Titanium oxide is the SCR catalyst material most commonly used, though vanadium pentoxide, noble metals, or zeolites are also used:

VII. General Calculations

A. Assumptions

S-36-1: Crude Heater #4

- Limit to operation during periods of shutdown on the Cogeneration Unit
- Emission factors are from existing permits
- Remove liquid firing from permit
- Residual Oil Heating Value: 150 MMBtu/1,000 gallons (AP-42 Section 1.3)
- F-Factor for Residual Oil: 9,190 dscf/MMBtu at 68°F (40 CFR 60)

S-36-37: Heater LH-1

- Limit to operation during periods of shutdown on the Cogeneration Unit
- Emission factors are from existing permits
- VOC emissions will not be counted towards offsetting increases from the proposed cogen as they are part of an SLC covering remaining two heaters and fugitive components listed on this permit (per applicant)

S-36-42: Heater H5

- Limit to operation during periods of shutdown on the Cogeneration Unit.
- Emission factors are from existing permits.

S-36-115: Cogeneration System

- The following table shows maximum fuel consumption rates for both daily and annual amounts depending on whether the turbine is operating in conjunction with the duct burner or not:

Operating Scenario	Turbine Fuel Rate MMBtu/hr	Duct Burner Fuel Rate MMBtu/hr	Total Fuel Rate MMBtu/hr
Maximum Daily Heat Input	190.82	169.88	190.82+168.88 = **360.70**
Maximum Annual Heat Input	183.77	164.79	183.77+164.79 = **348.56**
Duct Burner Only	0	220.08	0+220.08 = **220.08**

Therefore, worst case operation for this system is when both the turbine and duct burner are operating and when burning the the permitted level of RFG and oilfield gas with the remainder of heat input being natural gas.

- The GTE will be fired on the following maximum amount of Refinery Fuel Gas (RFG) and oil field gas (worst case[2], per applicant) with the listed corresponding HHV and sulfur content:

	HHV, (btu/ scf)	Sulfur, (lb-SOx/ MMBtu)	Maximum Daily Fuel Consumption, (MMBtu/day)	Maximum Annual Fuel Consumption, (MMBtu/year)
Natural Gas	1,000	0.00285	7,998.96	2,851,906.0
Refinery Fuel Gas	732	0.0216†	466.56	142,174.8
Oil Field Gas	765	0.00285	191.28	59,305.2
		Total =	**8,656.8**	**3,053,386**

†Highest allowable sulfur content of RFG is 0.0553 gr/dscf: $\frac{0.0553 gr \cdot S}{dscf}\left(\frac{dscf}{732 Btu}\right)\frac{10^6 Btu}{MMBtu}\left(\frac{1 lb}{7{,}000 gr}\right)\frac{64 lb \cdot SO_2}{32 lb \cdot S} = 0.0216 \frac{lb \cdot SO_X}{MMBtu}$

- Natural gas F factor is 8,710 dscf/MMBtu
- Start-up duration is limited to 2 hours/day and 24 hours/year (per applicant)
- Shutdown duration is limited to 1 hour/day and 12 hours/year (per applicant)
- Ammonia slip is limited to 10 ppm @ 15% (per applicant)

B. Emission Factors

The potential to emit for units S-36-37 and '-42 are not changing as a result of this project. Since these potential emissions will become part of the SLC for the proposed cogeneration unit they will be calculated in this project in support of following SLC calculations.

S-36-1:

The heaters associated with this permit unit are currently permitted to burn fuel oil for up to 216 hours per year along with an unlimited amount of gas firing capability. Therefore, a conservative potential to emit will be calculated at 216 hours/year of oil firing and 8,544 hours/year of gas firing as summarized in the separate oil and gas firing emission tables:

52.2 MMBtu/hr Crude Heater #4 Emission Factors (Gas Firing @ 8,544 hours/year)			
	ppmv	lb/MMBtu	Source
NO_X	30	0.036	Current PTO @ 3% O_2
SO_X	- -	0.00285†	Current PTO
PM_{10}	- -	0.0076	AP-42 (Table 1.4-2), revised per APR 1110
CO	400	0.295	Current PTO @ 3% O_2
VOC	- -	0.01	Current PTO

[2] Oil field gas is listed as a maximum due to the sulfur content limit being identical to natural gas and having a lower HHV (i.e. more oil field gas is required for same heat input requirement, resulting in more sulfur emissions)

52.2 MMBtu/hr Crude Heater #4 Emission Factors (Oil Firing @ 216 hours/year)			
	lb/1,000 gal	lb/MMBtu	Source
NO_X	- -	0.215	Current PTO
SO_X	172.7 (PTO factor)	1.15	AP-42, Table 1.3-1 No. 6 w/ 1.1% S
PM_{10}	11.56 (PTO factor)	0.077	AP-42, Table 1.3-1 No. 6 w/ 1.1% S
CO	- -	0.295	Current PTO @ 400 ppmv and 3% O_2
VOC	1.12 (PTO factor)	0.007	AP-42, Section 1.3 No. 6

27.0 MMBtu/hr Draft Vacuum Heater #VH-4 Emission Factors (Gas Firing @ 8,544 hours/year)			
	ppmv	lb/MMBtu	Source
NO_X	30	0.036	Current PTO @ 3% O_2
SO_X	- -	0.00285†	Current PTO
PM_{10}	- -	0.0076	AP-42 (Table 1.4-2), revised per APR 1110
CO	400	0.295	Current PTO @ 3% O_2
VOC	- -	0.0075	Current PTO

27.0 MMBtu/hr Draft Vacuum Heater #VH-4 Emission Factors (Oil Firing @ 216 hours/year)			
	lb/1,000 gal	lb/MMBtu	Source
NO_X	- -	0.215	Current PTO
SO_X	172.7 (PTO factor)	1.15	AP-42, Table 1.3-1 No. 6 w/ 1.1% S
PM_{10}	11.56 (PTO factor)	0.077	AP-42, Table 1.3-1 No. 6 w/ 1.1% S
CO	- -	0.295	Current PTO @ 400 ppmv and 3% O_2
VOC	1.12 (PTO factor)	0.002	AP-42, Table 1.3-3 No. 6, Industrial Boiler

†Sulfur emissions factor used in tables above is converted from 1 gr-S/100 dscf limit listed on the operating permits to lb/MMBtu as follows:

$$\frac{1\,gr\cdot S}{100\,dscf}\left(\frac{dscf}{1{,}000\,Btu}\right)\frac{10^6\,Btu}{MMBtu}\left(\frac{1\,lb}{7{,}000\,gr}\right)\frac{64\,lb\cdot SO_2}{32\,lb\cdot S}=0.00285\,\frac{lb\cdot SO_X}{MMBtu}$$

Post project operation of units will be gaseous fired only; oil firing capability will be eliminated. Therefore, the afore cited gas fired emission factors previously limited to 8,544 hours/year will be allowed 8,760 hours/year.

S-36-37:

This permit lists three separate gas fired heaters and contains vapor piping which routes vapors through a carbon canister. The VOC emissions for this permit unit are limited by permit condition to 3.5 lb/day and 1,278 lb/year (3.5 lb/day x 365 days/year). Emission factors for all units are summarized in the following tables:

16.5 MMBtu/hr Draft Extract Heater #LH-1 Emission Factors			
	ppmv	lb/MMBtu	Source
NO_X	30	0.036	Current PTO @ 3% O_2
SO_X	- -	0.00285†	Current PTO
PM_{10}	- -	0.0076	AP-42 (Table 1.4-2), revised per APR 1110
CO	400	0.295	Current PTO @ 3% O_2
VOC	3.5 lb/day		Current PTO (SLC)

12.6 MMBtu/hr Forced Draft Hot Oil Heater #LH-2 Emission Factors			
	ppmv	lb/MMBtu	Source
NO_X	30	0.036	Current PTO @ 3% O_2
SO_X	- -	0.00285†	Current PTO
PM_{10}	- -	0.0076	AP-42 (Table 1.4-2), revised per APR 1110
CO	400	0.295	Current PTO @ 3% O_2
VOC	3.5 lb/day		Current PTO (SLC)

12.0 MMBtu/hr Forced Draft Hot Oil Heater LH-3 Emission Factors			
	ppmv	lb/MMBtu	Source
NO_X	30	0.036	Current PTO @ 3% O_2
SO_X	- -	0.00285†	Current PTO
PM_{10}	- -	0.0076	AP-42 (Table 1.4-2), revised per APR 1110
CO	400	0.295	Current PTO @ 3% O_2
VOC	3.5 lb/day		Current PTO (SLC)

Carbon Canister Emission Factor			
	ppmv	lb/day	Source
VOC	3.5 lb/day		Current PTO (SLC)

†Sulfur emissions factor used in tables above is converted from 1 gr-S/100 dscf limit listed on the operating permits to 0.00285 lb/MMBtu.

S-36-42:

This permit lists two gas fired heaters. The 12.6 MMBtu/hr heater is listed, and emissions accounted for, on permit S-36-2. Emission factors for the remaining heater are summarized in the following table:

25.0 MMBtu/hr Vertical Asphalt Heater #H5 Emission Factors			
	ppmv	lb/MMBtu	Source
NO_X	30	0.036	Current PTO @ 3% O_2
SO_X	- -	0.00285†	Current PTO
PM_{10}	- -	0.0076	AP-42 (Table 1.4-2), revised per APR 1110
CO	400	0.295	Current PTO @ 3% O_2
VOC	- -	0.0055	Current PTO

†Sulfur emissions factor used in tables above is converted from 1 gr-S/100 dscf limit listed on the operating permits to 0.00285 lb/MMBtu.

S-36-115:

The worst case emissions from this cogeneration unit is when both the turbine and duct heater are burning the maximum amount of refinery and oil field gas.

Ammonia slip passing through the SCR as NH_3 is converted from ppm @ 15% O_2 to lb/MMBtu as follows:

$$\frac{10\ parts}{10^6}\left(\frac{8{,}578\ dscf}{MMBtu}\right)\frac{lb\cdot mol}{379.5\ ft^3}\left(\frac{17\ lb\cdot NH_3}{lb\cdot mole}\right)\frac{20.9}{20.9-15}=0.0136\frac{lb\cdot NH_3}{MMBtu}$$

PM_{10} emission factors are based on AP-42 factors for the turbine (stationary gas turbine combustion) and duct heater (external combustion) used in conjunction with the turbine fuel use and duct burner fuel use:

PM_{10} Emission Factors by Equipment				
	Turbine (lb/MMBtu)	Source	Duct Burner (lb/MMBtu)	Source
PM_{10}	0.0066	AP-42 Table 3.1-2a	0.0076	AP-42 Table 1.4-2

For the daily emissions limit for the combined use of the Turbine and Duct burner system, the following weighted average PM_{10} emissions limit is calculated:

$$\frac{(0.0066\,lb/MMBtu)190.82\,MMBtu/hr+(0.0076\,lb/MMBtu)169.88\,MMBtu/hr}{190.82+169.88\,MMBtu/hr}=0.0071\frac{lb\cdot PM_{10}}{MMBtu}$$

SO_X emissions are based on the following emission factors and worst case fuel consumption:

	HHV, (btu/ scf)	Sulfur, (lb-SOx/ MMBtu)	Maximum Daily Fuel Consumption, (MMBtu/day)	Maximum Annual Fuel Consumption, (MMBtu/year)
Natural Gas	1,000	0.00285	7,998.96	2,851,906.0
Refinery Fuel Gas	732	0.0216†	466.56	142,174.8
Oil Field Gas	765	0.00285	191.28	59,305.2

Emission factors for each of the three fuels are shown in the following table:

S-36-115 Cogeneration Emission Factors									
	RFG Emissions			**Oilfield Gas** Emissions			**Oilfield Gas** Emissions		
	ppmv	lb/ MMBtu	Source	ppmv	lb/ MMBtu	Source	ppmv	lb/ MMBtu	Source
NO_X	2.0	0.0074†	BACT Guideline 3.4.6	2.0	0.0074†	BACT Guideline 3.4.6	2.0	0.0074†	BACT Guideline 3.4.6
SO_X		0.0216	Previous Calculation		0.00285	Previous Calculation		0.00285	Previous Calculation
PM_{10}	See Previous Table			See Previous Table			See Previous Table		
CO	4.0	0.0090††	BACT Guideline 3.4.6	4.0	0.0090††	BACT Guideline 3.4.6	4.0	0.0090††	BACT Guideline 3.4.6
VOC	2.0	0.0026‡	BACT Guideline 3.4.6	2.0	0.0026‡	BACT Guideline 3.4.6	2.0	0.0026‡	BACT Guideline 3.4.6
NH_3	10	0.0136	Previous Calculation	10	0.0136	Previous Calculation	10	0.0136	Previous Calculation

† $\left(\frac{2\ parts \cdot NO_x}{10^6\ parts}\right)\frac{8{,}578\ dscf}{MMBtu}\left(\frac{lb \cdot mol}{379.5\ ft^3}\right)\frac{46\ lb \cdot NO_x}{lb \cdot mol}\left(\frac{20.9}{20.9-15}\right)=0.0074\frac{lb \cdot NO_x}{MMBtu}$; †† $\left(\frac{4\ parts \cdot CO}{10^6\ parts}\right)\frac{8{,}578\ dscf}{MMBtu}\left(\frac{lb \cdot mol}{379.5\ ft^3}\right)\frac{28\ lb \cdot CO}{lb \cdot mol}\left(\frac{20.9}{20.9-15}\right)=0.0090\frac{lb \cdot CO}{MMBtu}$

‡ $\left(\frac{2\ parts \cdot VOC}{10^6\ parts}\right)\frac{8{,}578\ dscf}{MMBtu}\left(\frac{lb \cdot mol}{379.5\ ft^3}\right)\frac{16\ lb \cdot VOC}{lb \cdot mol}\left(\frac{20.9}{20.9-15}\right)=0.0026\frac{lb \cdot VOC}{MMBtu}$

SJR has requested an allowance for start-up and shutdown emissions in the following amounts:

Start-up and Shutdown Emissions		
Pollutant	Start-up (lb/hr)	Shutdown (lb/hr)
NO_X	15.3	12.8
CO	548.1	648.6
VOC	34.1	39.0

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since daily pre-project emissions will not be used for any subsequent calculations they will not be calculated in this evaluation. The potential to emit for these units are calculated as follows, except for SO_X and PM_{10} emissions from unit S-36-115, and summarized in the tables below:

$$\frac{lb \cdot EF}{MMBtu}\left(\frac{MMBtu}{hr}\right)\frac{Permitted\ annual\ hours}{year} = \frac{lb \cdot EF}{year}$$

S-36-1:

As discussed previously these heaters are permitted to burn fuel oil for up to 216 hours per year along with an unlimited amount of gas firing capability. Therefore, the potential to emit will be calculated at 216 hours/year of oil firing and 8,544 hours/year:

Annual Pre-Project Potential to Emit (PE1) [lb/yr]					
	52.2 MMBtu/hr Gas-fired	52.2 MMBtu/hr Oil-fired	27.0 MMBtu/hr Gas-fired	27.0 MMBtu/hr Gas-fired	Total (lb/yr)
NO_X	16,056	2,424	8,305	1,254	28,039
SO_X	1,271	12,966	657	6,707	21,601
PM_{10}	3,390	868	1,753	449	6,460
CO	131,569	3,326	68,053	1,720	204,668
VOC	4,460	79	1,730	12	6,281

S-36-37:

The VOC emissions for this permit unit are limited by permit condition to 3.5 lb/day and 1,278 lb/year (3.5 lb/day x 365 days/year).

Annual Pre-Project Potential to Emit (PE1) [lb/yr]					
	16.5 MMBtu/hr	12.6 MMBtu/hr	12.0 MMBtu/hr	Carbon Canister	Total (lb/yr)
NO_X	5,203	3,974	3,784	0	12,961
SO_X	412	315	300	0	1,027
PM_{10}	1,099	839	799	0	2,737
CO	42,639	32,561	31,010	0	106,210
VOC	1,278 lb/year (SLC covering all units on permit)				1,278

S-36-42:

This permit lists two gas-fired heaters. The 12.6 MMBtu/hr heater is listed, and emissions accounted for, on permit S-36-2.

Emissions for the remaining heater are summarized in the following table:

25.0 MMBtu/hr Pre-Project Potential to Emit (PE1)	
	Annual Emissions (lb/yr)
NO_X	7,884
SO_X	624
PM_{10}	1,664
CO	64,605
VOC	1,205

S-36-115:

Since S-36-115 is a new emissions unit, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

S-36-1:

With oil firing capability eliminated the process heaters can fire 8,760 hours/yr on gas:

Post Project Potential to Emit (PE2)						
	52.2 MMBtu/hr (lb/day)	52.2 MMBtu/hr (lb/yr)	27.0 MMBtu/hr (lb/day)	27.0 MMBtu/hr (lb/yr)	Total **(lb/day)**	Total **(lb/yr)**
NO_X	45.1	16,462	23.3	8,515	68.4	24,977
SO_X	3.6	1,303	1.8	674	5.4	1,977
PM_{10}	9.5	3,475	4.9	1,798	14.4	5,273
CO	369.6	134,895	191.2	69,773	560.8	204,668
VOC	12.5	4,573	4.9	1,774	17.4	6,347

S-36-37:

The VOC emissions for this permit unit are limited by permit condition to 3.5 lb/day and 1,278 lb/year (3.5 lb/day x 365 days/year).

Daily Post Project Potential to Emit (PE2)					
	16.5 MMBtu/hr	12.6 MMBtu/hr	12.0 MMBtu/hr	Carbon Canister	Total (lb/day)
NO_X	14.3	10.9	10.4	0	35.6
SO_X	1.1	0.9	0.8	0	2.8
PM_{10}	3.0	2.3	2.2	0	7.5
CO	116.8	89.2	85.0	0	291.0
VOC	3.5 lb/day (SLC covering all units on permit)				3.5

Annual Post Project Potential to Emit (PE2)					
	16.5 MMBtu/yr	12.6 MMBtu/yr	12.0 MMBtu/yr	Carbon Canister	Total (lb/yr)
NO_X	5,203	3,974	3,784	0	12,961
SO_X	412	315	300	0	1,027
PM_{10}	1,099	839	799	0	2,737
CO	42,639	32,561	31,010	0	106,210
VOC	1,278 lb/year (SLC covering all units on permit)				1,278

S-36-42:

This permit lists two gas-fired heaters. The 12.6 MMBtu/hr heater is listed, and emissions accounted for, on permit S-36-2. Emissions for the remaining heater are summarized in the following table:

25.0 MMBtu/hr Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	21.6	7,884
SO_X	1.7	624
PM_{10}	4.6	1,664
CO	177.0	64,605
VOC	3.3	1,205

S-36-115:

Only the GTE and duct burner combined emissions will be calculated for potential emissions (although duct burner can fire separately) as these represent the worst case potential emissions. Furthermore, maximum emissions will occur when the turbine is starting up and shutting down. For NO_X, CO, and VOC since SJR has requested 2 hr/day and 24 hr/year of start-up emissions and 1 hr/day and 12 hr/yr of shutdown emissions, steady state emissions will be calculated at 21 hr/day (24 hours – 2 hours of start-up – 1 hour of shutdown per day) and 8,724 hr/yr (8,760 hours – 24 hours of start-up – 12 hours of shutdown per year).

SO_X emissions are calculated as follows:

$$\frac{lb \cdot SO_X}{MMBtu\ of\ RFG}\left(\frac{MMBtu\ of\ RFG}{day\ or\ year}\right)+\frac{lb \cdot SO_X}{MMBtu\ of\ Oilfield\ Gas}\left(\frac{MMBtu\ of\ Oilfield\ Gas}{day\ or\ year}\right)+$$

$$\frac{lb \cdot SO_X}{MMBtu\ of\ Natural\ Gas}\left(\frac{MMBtu\ of\ Natural\ Gas}{day\ or\ year}\right)=\frac{lb \cdot SO_X}{day\ or\ year}$$

PM_{10} emissions from the turbine and duct burner are calculated based on heat input (not type of fuel as with other pollutants) and the type of equipment as explained in section VII.B.

$$\frac{lb \cdot PM_{10}^{Turbine}}{MMBtu}\left(\frac{MMBtu_{Turbine}}{day\ or\ year}\right)+\frac{lb \cdot PM_{10}^{Duct\ Burner}}{MMBtu}\left(\frac{MMBtu_{Duct\ Burner}}{day\ or\ year}\right)=\frac{lb \cdot PM_{10}}{day\ or\ year}$$

The following table shows maximum steady state emissions:

Steady State Potential to Emit		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	55.1	22,105
SO_X	33.4	11,368
PM_{10}	61.2	21,596
CO	67.0	26,884
VOC	19.3	7,766
NH_3	117.7	41,525

The following table shows the start-up and shutdown emissions for 2 hr/day and 24 hr/year of start-up emissions and 1 hr/day and 12 hr/yr of shutdown emissions:

Start-up and Shutdown Emissions						
	Start-up		Shutdown		Total	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
NO_X	30.6	367	12.8	154	43.4	521
CO	1,096.20	13,154	648.6	7,783	1,744.8	20,937
VOC	68.2	818	39	468	107.2	1,286

The following table shows the summation of steady state emissions and start-up/shutdown emissions:

Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	55.1+43.4= **98.5**	22,105+521= **22,626**
SO_X	**33.4**	**11,368**
PM_{10}	**61.2**	**21,596**
CO	67.0+1,744.8= **1,811.8**	26,884+20,937= **47,821**
VOC	19.3+107.2= **126.5**	7,766+1,286= **9,052**
NH_3	**117.7**	**41,525**

Specific Limiting Condition (SLC):

To mitigate emissions, SJR has proposed to establish an SLC by not operating the 52.2 MMBtu/hr heater associated with S-36-1, the 16.5 MMBtu/hr heater associated with S-36-37, and the 25 MMBtu/hr heater associated with S-36-42 while the cogen is in operation.

The table below shows how the SLC for these pollutants will be established (emissions used in the SLC are in **bold** type):

SLC Post Project Potential to Emit [PE2] (lb/year)						
Permit No.	Emission Unit	NO_X	SO_X	PM_{10}	CO	VOC
S-36-1	52.2 MMBtu/hr	**16,462**	1,303	3,475	**134,895**	4,573
S-36-37	16.5 MMBtu/hr	**5,203**	412	1,099	**42,639**	0[3]
S-36-42	25 MMBtu/hr	**7,884**	624	1,664	**64,605**	1,205
S-36-115	Cogen	22,626	**11,368**	**21,596**	47,821	**9,052**
SLC Total, lb/year		29,549	11,368	21,596	242,139	9,052
QNEC [PE2 – PE1] (lb/qtr)		0	2,257	3,840	0	819

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

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

The Pre-Project Stationary Source Potential to Emit (SSPE1) is summarized below (see Appendix B for detailed annual emission on units at this facility as provided by the applicant and combined with emissions calculated in this proposal).

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Pre-Project SSPE (SSPE1)	153,750	181,832	49,441	662,729	122,095

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since

[3] Since VOC emissions for this unit are shared with the other two heaters and carbon canister, as a worst case, they will not be considered in this calculation (the other equipment covered by this SLC could operate while this cogen is operating as only the one heater would be limited by permit condition to not operate).

September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

As shown in section VII.C.2, facility emissions of NO_X and CO are not changing and an SLC for these emissions will envelope emissions increases from the cogen. Furthermore, no change in emissions from units S-36-1, '-37, or '-42 is proposed with this project. Therefore, SSPE2 will be equal to SSPE1 plus the increase in emissions of SO_X, PM_{10}, and VOC over the existing combined potentials to emit of units S-36-1 (post project as there was a decrease from oil firing capability being eliminated), '-37, and '-42 for these pollutants. This increase in SO_X, PM_{10}, and VOC pollutants is summarized in the following table and calculated as:

[Cogen Emissions] – ([S-36-1, 52.2 MMBtu/hr Post Project Emissions] + [S-36-37, 16.5 MMBtu/hr Emissions] + [S-36-42, 25.0 MMBtu/hr Emissions]) = [Increase in Emissions Over SSPE1]

Post Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	153,750	181,832	49,441	662,729	122,095
S-36-115-0	0	11,368-(1,303+412+624) **= 9,029**	21,596-3,475+ 1,099+1,664) **= 15,358**	0	9,052-(4,573+0+ 1,205) **= 3,274**
Post Project SSPE (SSPE2)	153,750	181,832+ 9,029 **= 190,861**	49,441+ 15,358 **= 64,799**	662,729	122,095+ 3,274 **= 125,369**

5. Major Source Determination

Pursuant to Section 3.23 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.23.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Pre-Project SSPE (SSPE1)	153,750	181,832	49,441	662,729	122,095
Post Project SSPE (SSPE2)	153,750	190,861	64,799	662,729	125,369
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	Yes	No	Yes	Yes

As seen in the table above, the facility is an existing Major Source for NO_X, SO_X, CO, and VOC. The source is not an existing Major Source for PM_{10} and is not becoming a Major Source for this pollutant as a result of this project.

6. Baseline Emissions (BE)

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

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

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

otherwise,

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

The following tables summarize the units being evaluated and the applicable guidelines with CO and PM_{10} omitted as the guideline does not require control measures for CO and, as shown in Section VII.C.5, the facility is not a major source for PM_{10} (therefore $PE1_{PM10}=BE_{PM10}$):

S-36-1-14	Applicable Guideline	BACT Requirement		
		NOx @ 3% O_2	SOx	VOC
27.0 MMBtu/hr Heater	1.8.1 (1/4/2001)	30 ppmv	Natural Gas Fired	NG and/or LPG
52.2 MMBtu/hr Heater	1.8.2 (1/4/2001)	**9 ppmv**	Natural Gas Fired	- -
		Permit Limit		
		30 ppmv	PUC Gas	PUC Gas
	Not clean →	**30 ppmv**	PUC Gas	- -

S-36-37-12	Applicable Guideline	BACT Requirement		
		NOx @ 3% O_2	SOx	VOC
16.5 MMBtu/hr Heater	1.8.1 (1/4/2001)	30 ppmv	Natural Gas Fired	NG and/or LPG
12.6 MMBtu/hr Heater	1.8.1 (1/4/2001)	30 ppmv	Natural Gas Fired	NG and/or LPG
12.0 MMBtu/hr Heater	1.8.1 (1/4/2001)	30 ppmv	Natural Gas Fired	NG and/or LPG
		Permit Limit		
		30 ppmv	PUC Gas	PUC Gas
		30 ppmv	PUC Gas	PUC Gas
		30 ppmv	PUC Gas	PUC Gas

S-36-42-9	Applicable Guideline	BACT Requirement		
		NOx @ 3% O_2	SOx	VOC
25.0 MMBtu/hr Heater	1.8.1 (1/4/2001)	30 ppmv	Natural Gas Fired	NG and/or LPG
		Permit Limit		
		30 ppmv	PUC Gas	PUC Gas

S-36-1:

Pursuant to Rule 2201, Section 3.12, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

The natural draft vacuum heater is a clean emissions unit for all pollutants as it satisfies the requirements of BACT Guideline 1.8.1 (see BACT guideline in Appendix H) for a process heater located at a refinery ≤50.0 MMBtu/hr, updated 1/4/2001.

Crude heater #4 has been and will continue to be limited to 30 ppmv-NO_X. BACT guideline (see BACT guideline in Appendix H) 1.8.2 for a process heater located at a refinery >50.0 MMBtu/hr, updated 1/4/2001 is applicable to this unit and requires NO_X emissions of 9 ppmv or less. Therefore this unit cannot be considered clean for NO_X emissions. The unit is clean for other pollutants.

SJR has provided fuel records for the two years prior to receipt of their application for this project (see fuel records in Appendix E). Recent source test results (see test results in Appendix F) will be used in conjunction with recent fuel records to calculate the HAE of crude heater #4.

Source test results show NO_X emissions of 0.0286 lb/MMBtu. Average fuel records show 385,276 MMBtu/yr resulting in HAE of 11,019 lb-NO_X/yr. As the actual emissions do not represent 80% of the potential emissions, this unit cannot be considered highly utilized. Therefore, baseline emissions for NO_X on the 52.2 MMBtu/hr heater will be equal to HAE.

S-36-37 and '-42:

The heaters listed in these permits are clean emissions units for all pollutants as they satisfy the requirements of BACT Guideline 1.8.1 (see BACT guideline in Appendix H) for a process heater located at a refinery ≤50.0 MMBtu/hr, updated 1/4/2001.

S-36-115-0:

Since this is a new emissions unit, BE = PE1 = 0 for all pollutants.

Baseline emissions for this project are summarized in the following table:

S-36-1	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
27.0 MMBtu/hr Heater	9,559	7,364	2,202	69,773	1,742
52.2 MMBtu/hr Heater	**11,019**	1,303†	3,475†	134,895†	4,573†

†)Baseline emissions for this unit are based on gas firing factors only as this unit is being made clean for these pollutants within this project (PE1 emissions include oil firing potential)

S-36-37	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
16.5 MMBtu/hr Heater	5,203	412	1,099	42,639	1,278 (SLC)
12.6 MMBtu/hr Heater	3,974	315	839	32,561	
12.0 MMBtu/hr Heater	3,784	300	799	31,010	

S-36-42	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
25.0 MMBtu/hr Heater	7,884	624	1,664	64,605	1,205

S-36-115	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
19.9 MW Cogeneration	0	0	0	0	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.*"

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NOx, SOx, PM10, CO, and VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions units within this project[4] do not have a total potential to emit which is greater than Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

[4] As the permits include several emission units, only those units being modified to mitigate increases from the proposed cogeneration system are considered for this calculation.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO_x	29,549	50,000	No
SO_x	11,368	80,000	No
PM_{10}	21,596	30,000	No
VOC	9,052	50,000	No

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for PM_{10} this project does not constitute a Federal Major Modification for PM_{10}. Additionally, since the facility is not a major source for PM_{10} (140,000 lb/year), it is not a major source for PM2.5 (200,000 lb/year).

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

Since the installation of this cogeneration system will result in an increase in NO_x and VOC this project is considered a Federal Major Modification for these pollutants, and no further analysis is required. The remaining pollutant, SO_X, will be considered as follows:

Step 1

For existing emissions units, the increase in emissions is calculated as follows.

Emission Increase = PAE – BAE

Where: PAE = Projected Actual Emissions, and
BAE = Baseline Actual Emissions

If there is no increase in design capacity or potential to emit, the PAE is equal to the annual emission rate at which the unit is projected to emit in any one year, selected by the operator, 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 detailed PAE are not provided, the PAE is equal to the PE2 for each permit unit.

Detailed PAE were not provided; therefore, PAE = PE2.

The BAE is calculated based on historical emissions and operating records for any 24 month period, selected by the operator, within the previous 10 year period (5 years for electric utility steam generating units). The BAE must be adjusted to exclude any non-compliant operation emissions and emissions that are no longer allowed due to lower applicable emission limits that were in effect when this application was deemed complete.

The applicant has provided fuel records (see Appendix E) of PUC gas burned to determine SO_X emissions.

Emission factors, average fuel use, and the resulting BAE for these units are summarized in the following tables:

S-36-1: Crude Heater #4

Baseline Actual Emissions [BAE]			
Pollutant	Emission Factor (lb/MMBtu)	Average Fuel Use (lb/yr)	BAE (lb/yr)
SO_x	0.00285	385,276	1,098

S-36-37: Heater LH-1

Baseline Actual Emissions [BAE]			
Pollutant	Emission Factor (lb/MMBtu)	Average Fuel Use (lb/yr)	BAE (lb/yr)
SO_x	0.00285	181,169	516

S-36-42: Heater H5

Baseline Actual Emissions [BAE]			
Pollutant	Emission Factor (lb/MMBtu)	Average Fuel Use (lb/yr)	BAE (lb/yr)
SO_x	0.00285	55,450	158

SO_X Emissions Increase = $(PE2_{Crude\ Heater\ \#4} + PE2_{Heater\ LH\text{-}1} + PE2_{Heater\ H5} + PE2_{Cogen}) - (BAE_{Crude\ Heater\ \#4} + BAE_{Heater\ LH\text{-}1} + BAE_{Heater\ H5})$

$= (1{,}303 + 412 + 624 + 11{,}368) - (1{,}098 + 516 + 158) = 11{,}935$ lb-SO_X/yr

The project's combined total emission increases are equal to the PE2 for all pollutants as calculated previously and are compared to the Federal Major Modification Thresholds in the following table:

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO_x*	>0	0	Yes
VOC*	>0	0	Yes
PM_{10}	NA	30,000	No
$PM_{2.5}$	NA	20,000	No
SO_x	11,935	80,000	No

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

Since there is an increase in NO_x and VOC emissions, this project constitutes a Federal Major Modification, and no further analysis is required.

VIII. Compliance

Rule 1081 Source Sampling

This Rule requires adequate and safe sampling facilities such as sampling ports, sampling platforms, access to the sampling platforms for use in sampling to determine compliance with emissions limits, and specifies methods and procedures for source testing and sample collection.

The following conditions will be listed to ensure compliance with the requirements of this rule.

- The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
- 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]
- Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081]
- For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O2) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
- The following test methods shall be used: NOx - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, and 40 CFR 60.4400 (1)(i)]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 1081]

Rule 1100 Equipment Breakdown

This rule defines a breakdown condition and the procedures to follow if one occurs. The corrective action, the issuance of an emergency variance, and the reporting requirements are also specified.

The following permit conditions will ensure compliance with the provisions of this rule:

- Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]
- The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

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 exempted pursuant to Section 4.2, 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 SB288 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 seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a new cogeneration unit with a PE greater than 2 lb/day for NO_X, SO_X, PM_{10}, CO, and VOC. BACT is triggered for NO_X, SO_X, PM_{10}, CO, and VOC since the PEs are greater than 2 lbs/day and since the SSPE2 for CO is greater than 200,000 lbs/year, as demonstrated in Section VII.C.5 of this document.

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

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

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

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 Potential to Emit 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))

For units S-36-37 and '-42, PE2 = PE1 and EF2 = EF1 for all pollutants; therefore the AIPE for all pollutants will be equal to 0.0 lb/day. The following table shows the resulting AIPE for Heater #4 listed on permit S-36-1:

Adjusted Increase in Permitted Emissions [AIPE]					
Pollutant	PE2 (lb/day)	PE1 (lb/day)	EF2 (lb/MMBtu)	EF1 (lb/MMBtu)	AIPE (lb/day)
NO_X	1.9	269.4	0.036	0.215	-43.2
SO_X	3.6	1,440.7	0.00285	1.15	0.0
PM_{10}	9.5	96.5	0.0076	0.077	0.0
CO	369.6	369.6	0.295	0.295	0.0
VOC	12.5	8.8	0.01	0.007	-0.1

As demonstrated above, the AIPE is not greater than 2.0 lb/day for any emissions for any unit in this project; therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does constitute a Federal Major Modification for NO_X and VOC emissions; therefore BACT is triggered for NO_X and VOC emissions for all emissions units in the project for which there is an emission increase. As the proposed new cogen is the only unit with a potential increase, BACT for NO_X and VOC for this unit will be required.

2. BACT Guideline

BACT Guideline 3.4.6, applies to gas turbines >10 MW and <50 MW with uniform load and heat recovery.

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.
For this operation, since the duct burner is capable of being operated independently of the turbine, BACT will be considered separately for the turbine and the duct burner as the latter will be operated as a process heater. Pursuant to the attached Top-Down BACT Analysis (see Appendix I), BACT has been satisfied with the following:

Turbine (Guideline 3.4.6):

- NO_X: 2 ppmvd @ 15% O_2 over a 1-hour averaging period with reducing agent injection
- SO_X: PUC regulated or Non-PUC regulated natural gas with no more than 1.0 gr-S/100 scf
- PM_{10}: Air inlet cooler/filter, lube oil vent coelescer and PUC regulated or Non-PUC regulated natural gas with no more than 1.0 gr-S/100 scf
- CO: 4 ppmvd @ 15% O_2 over a 1-hour averaging period
- VOC: 2 ppmvd @ 15% O_2 (as methane) over a 1-hour averaging period

Duct Burner (Guideline 1.8.2):

- NO_X: 2 ppmvd @ 15% O_2 over a 1-hour averaging period with reducing agent injection[5]
- SO_X: Treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf
- PM_{10}: Treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf
- CO: 4 ppmvd @ 15% O_2 over a 1-hour averaging period
- VOC: Good combustion practices

B. Offsets

1. Offset Applicability

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

[5] 5.4 ppm-NO_X @ 3% O_2 = 0.007 lb-NO_X/MMBtu = 2 ppm-NO_X @ 15% O_2

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

Offset Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Post Project SSPE (SSPE2)	153,750	190,861	64,799	662,729	125,369
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for all pollutants and the SSPE2 is greater than the offset thresholds; therefore offset calculations will be required for this project.

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

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

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

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

otherwise,

BE = Historic Actual Emissions (HAE)

As calculated in Section VII.C.6 above, the Baseline Emissions (BE) from the units being used to mitigate emissions increases associated with the proposed cogeneration unit are summarized in the following table:

S-36-1	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
52.2 MMBtu/hr Heater	11,019	1,303	3,475	134,895	4,573

S-36-37	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
16.5 MMBtu/hr Heater	5,203	412	1,099	42,639	0†

†)VOC emissions for this unit are part of an SLC also including fugitive VOC and products of combustion from two other heaters. Emissions in the SLC will remain with the other units and will not be used towards mitigating any increases due to a possible reduction in permitted operation of the other emissions units.

S-36-42	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
25.0 MMBtu/hr Heater	7,884	624	1,664	64,605	1,205
S-36-115	Baseline Emissions				
	NO_X	SO_X	PM_{10}	CO	VOC
19.9 MW Cogeneration	0	0	0	0	0

The difference between the proposed SLC, as discussed previously, and the total BE from units used to mitigate increases results in the amount of offsets required (Offsets Required (lb/year) = SLC – ∑BE) is summarized in the following table:

Offset Required [SLC – BE]						
Permit No.	Emission Unit	NO_X	SO_X	PM_{10}	CO	VOC
S-36-1	52.2 MMBtu/hr	11,019	1,303	3,475	134,895	4,573
S-36-37	16.5 MMBtu/hr	5,203	412	1,099	42,639	0
S-36-42	25 MMBtu/hr	7,884	624	1,664	64,605	1,205
S-36-115	Cogen	0	0	0	0	0
	Summation of BE	24,106	2,339	6,238	242,139	5,778
	Proposed SLC (lb/year)	29,549	11,368	21,596	242,139	9,052
	SLC – ∑BE (lb/year)	**5,443**	**9,029**	**15,358**	**0**	**3,274**
	SLC – ∑BE (lb/qtr)	**1,361**	**2,257**	**3,840**	**0**	**819**

There are no increases in cargo carrier emissions and the DOR will be assumed to be 1.3:1 for SO_X (SJR is a major source for SO_X) and 1.2:1 for PM_{10} (SJR is not a major source for PM_{10}) as the applicant does not possess any offsets generated on site. The DOR for NO_X and VOC emissions, since these pollutants trigger a Federal Major Modification, will be calculated at a 1.5:1 ratio as follows:

Offsets Required (lb/year) = (SLC – ∑BE) x DOR

NO_X Offsets Required (lb/year) = 5,443 x 1.5 = 8,165
SO_X Offsets Required (lb/year) = 9,029 x 1.3 = 11,738
PM_{10} Offsets Required (lb/year) = 15,358 x 1.2 = 18,430
VOC Offsets Required (lb/year) = 3,274 x 1.5 = 4,911

Calculating the appropriate quarterly emissions to be offset, including applicable offset ratios, is as follows:

NO_X:	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	2,041	2,041	2,041	2,041
SO_X:	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	2,935	2,935	2,935	2,935
PM_{10}:	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	4,608	4,608	4,608	4,608
VOC:	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	1,228	1,228	1,228	1,228

The applicant has stated that the facility plans to place sufficient funds in an escrow account for the purchase of ERC certificates to offset the increases in NO_X, SO_X, PM_{10}, and VOC emissions associated with this project. The amount of funding to be placed in escrow is based on the current market price of ERC certificates for NO_X, SO_X, PM_{10}, and VOC. The escrow account shall be funded prior to ordering the GTE. ERC certificates in the appropriate amount shall be provided prior to the onset of operation of the cogeneration unit. The escrow funds will be withdrawn by the applicant in the event the project is cancelled after issuance of Authorities to Construct. As allowed by District policy, SOx certificates may be used in place of PM_{10} certificates at a ratio of 1.0 to 1.

Proposed Rule 2201 (offset) Conditions for S-36-115:

- 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 – 2,041 lb, 2nd quarter - 2,041 lb, 3rd quarter - 2,041 lb, and 4th quarter - 2,041 lb. [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_X emission reduction credits for the following quantity of emissions: 1st quarter – 2,257 lb, 2nd quarter - 2,257 lb, 3rd quarter - 2,257 lb, and 4th quarter - 2,257 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 12/18/2008, in effect 6/10/2010). [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM_{10} emission reduction credits for the following quantity of emissions: 1st quarter – 3,840 lb, 2nd quarter - 3,840 lb, 3rd quarter - 3,840 lb, and 4th quarter - 3,840 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 12/18/2008, in effect 6/10/2010). [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 1,228 lb, 2nd quarter - 1,228 lb, 3rd quarter - 1,228 lb, and 4th quarter - 1,228 lb. [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:
a. New Major Sources, Federal Major Modifications, and SB288 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.

a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications

As demonstrated in VII.C.7, this project is a Federal Major Modification for NO_X and VOC; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

The PE2 for S-36-115 is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO_X	98.5	100 lb/day	No
SO_X	33.4	100 lb/day	No
PM_{10}	61.2	100 lb/day	No
CO	1,811.8	100 lb/day	Yes
VOC	126.5	100 lb/day	Yes

Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_X	153,750	153,750	20,000 lb/year	No
SO_X	181,832	190,861	54,750 lb/year	No
PM_{10}	49,441	64,799	29,200 lb/year	No
CO	662,729	662,729	200,000 lb/year	No
VOC	122,095	125,369	20,000 lb/year	No

As detailed in the previous table, 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 Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e., SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively.

The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	153,750	153,750	0	20,000 lb/year	No
SO_x	190,861	181,832	9,029	20,000 lb/year	No
PM_{10}	64,799	49,441	15,358	20,000 lb/year	No
CO	662,729	662,729	0	20,000 lb/year	No
VOC	125,369	122,095	3,274	20,000 lb/year	No

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

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_X and VOC emissions triggering a Federal Major Modification and for CO and VOC emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

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

S-36-1:

- This Authority to Construct (ATC) shall be implemented concurrently with ATCs S-36-37-14, '-42-10, and '-115-0. [District Rule 2201]
- Draft heater #4 (52.2 MMBtu/hr) shall not operate during periods when S-36-115 is operating. [District Rule 2201]
- The burning of fuel oil in ~~crude heater #4 and~~the vacuum heater shall only be performed during periods of involuntary natural gas curtailments and for equipment testing. [District Rules 2520, 9.4.2, 4305, 4306 and 4351]
- ~~Oil firing emissions from 52.2 MMBtu/hr crude heater #4 shall not exceed any of the following limits: 11.56 lb PM10/1000 gal; SOx (as SO2): 172.7 lb/1000 gal; NOx (as NO2): 0.215 lb/MM Btu; VOC: 1.12 lb/1000 gal; or CO : 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305 and 4306]~~

S-36-37:

- This Authority to Construct (ATC) shall be implemented concurrently with ATCs S-36-1-15, '-42-10, and '-115-0. [District NSR Rule]
- LH1 heater (16.5 MMBtu/hr) shall not operate during periods when S-36-115 is operating. [District NSR Rule]

S-36-42:

- This Authority to Construct (ATC) shall be implemented concurrently with ATC S-36-1-15, '-37-14, and '-115-0. [District Rule 2201]
- Asphalt heater H5 (25 MMBtu/hr) shall not operate during periods when S-36-115 is operating. [District Rule 2201]

S-36-115:

- This Authority to Construct (ATC) shall be implemented concurrently with ATCs S-36-1-15, '-37-14, and '-42-10. [District Rule 2201]
- Turbine shall be fired on oilfield gas and/or natural gas. [District Rule 2201]
- Duct burner shall be fired on refinery gas, oilfield gas, and/or natural gas. [District Rule 2201]
- A totalizing mass or volumetric fuel flow meter shall be utilized on each fuel source and maintained to calculate the amount of gas combusted based on measured flow meter parameters (fuel pressure and temperature), gas composition, and HHV of the fuel. [District Rules 2201 and 4703]
- Combined turbine and duct burner refinery gas and oilfield gas heat input shall not exceed the following annual limits: 142,174.8 MMBtu/yr of refinery gas and 59,305.2 MMBtu/yr of oilfield gas. [District Rule 2201]
- Combined turbine and duct burner refinery gas and oilfield gas heat input shall not exceed the following daily limits: 466.56 MMBtu/day of refinery gas and 191.28 MMBtu/day of oilfield gas. [District Rule 2201]

- Combined turbine and duct burner total heat input shall not exceed 8,656.8 MMBtu/day or 3,053,386 MMBtu/year. [District Rule 2201]
- Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Emissions from the cogeneration system, except during periods of startup and shutdown, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0071 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx, CO and VOC emission limits are based on 1-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]
- Duct burner emissions, when operated without the turbine operating, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0076 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]
- Start-up emissions shall not exceed 15.3 lb-NOx/hr, 548.1 lb-CO/hr, or 34.1 lb-VOC/hr. [District Rule 2201]
- Shutdown emissions shall not exceed 12.8 lb-NOx/hr, 648.6 lb-CO/hr, or 39.0 lb-VOC/hr. [District Rule 2201]
- Duration of Start-ups shall not exceed 2 hours/day or 24 hours/year. Duration of Shutdowns shall not exceed 1 hour/day or 12 hours/year. [District Rule 2201]
- Emissions from the gas turbine system shall not exceed any of the following limits: 98.5 lb-NOx/day or 22,626 lb-NOx/year referenced as NO2; 1,811.8 lb-CO/day or 47,821 lb-CO/year; 33.4 lb-SOx/day or 11,368 lb-SOx/year; 61.2 lb-PM10/day or 21,596 lb-PM10/year; 126.5 lb-VOC/day or 9,052 lb-VOC/year referenced as methane. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201]
- Ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24-hour average period. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

Source testing is not required for unit S-36-1 as it is currently authorized to burn gas and oil and is only being modified to eliminate oil firing capability. Permit units S-36-37 and '-42 will not have a change in emissions or fuel; therefore a source test is not necessary.

The cogeneration unit is subject to District Rule 4703, *Stationary Gas Turbines*. Source testing requirements, in accordance with this rule, will be discussed in Section VIII of this evaluation.

2. Monitoring

No additional monitoring for units S-36-1, '-37, or '-42 is required to demonstrate compliance with Rule 2201.

The cogeneration unit is subject to District Rule 4703, *Stationary Gas Turbines*. Monitoring requirements, in accordance with this rule, will be discussed in Section VIII of this evaluation.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201.

No additional recordkeeping for units S-36-1, '-37, or '-42 is required to demonstrate compliance with Rule 2201.

The cogeneration unit is subject to District Rule 4703, *Stationary Gas Turbines*. Recordkeeping requirements, in accordance with this rule, will be discussed in Section VIII of this evaluation.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

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

The proposed location is in an attainment area for NO_X, SO_X, PM_{10}, and CO. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_X, SO_X, PM_{10}, or CO.

	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	X	X	X	X	X
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[1]	Pass[1]

[1]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

As shown, the calculated contribution of NO_X, SO_X, PM_{10}, and CO is not expected to cause or make worse a violation of an air quality standard.

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 Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this facility is undergoing a Federal Major Modification, therefore this requirement is applicable. Included in Appendix C is SJR's compliance certification.

H. Alternate Siting Analysis

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification. This project results in a Federal Major Modification; therefore an alternative siting analysis is required.

The current project occurs at an existing facility. The applicant proposes to install a new cogeneration unit that will provide steam and thermal heat to existing operations at the site and will typically be operated when other steam producing equipment is not.

Since the project will provide steam and thermal energy 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 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."

As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permits are issued.

Rule 4001 New Source Performance Standards (NSPS)

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

40 CFR Part 60, Subpart A, section 14, defines the meaning of modification to which the the standards are applicable. §60.14, paragraph (e)(5) states that the following will not be considered as a modification: *"the addition or use of any system or device whose primary funtion is the reduction of air pollutants, except when an emission control system is removed or replaced by a system which the Administrator determines to be less environmentally beneficial".*

Equipment listed on permits S-36-1, '-37, and '-42 are not newly constructed or reconstructed, nor is this equipment being modified (as defined above). Since the permittee is removing oil firing capability to S-36-1 and limiting operation on units S-36-1, '-37, and '-42 the requirements of these sections do not apply.

The following subparts are applicable to the proposed cogeneration system:

- **40 CFR Part 60 Subpart GG** - Standards of Performance for Stationary Gas Turbines
- **40 CFR Part 60 Subpart J** – Standards of Performance for Petroleum Refineries
- **40 CFR Part 60 Subpart Ja** – Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007
- **40 CFR Part 60 Subpart KKKK** - Standards of Performance for Stationary Combustion Turbines

40 CFR Part 60 Subpart GG - Standards of Performance for Stationary Gas Turbines

40 CFR Part 60 Subpart KKKK, Section 60.4305(b), states that stationary combustion turbines regulated under this subpart are exempt from the requirements of 40 CFR 60 Subpart GG.

The proposed GTE is regulated under 40 CFR Part 60 Subpart KKKK. Therefore the unit is exempt from the requirements of 40 CFR Part 60 Subpart GG and no further discussion is required.

40 CFR Part 60 Subpart J - Standards of Performance for Petroleum Refineries

40 CFR Part 60 Subpart J, Section 60.100(b), states that this section applies only to combustion devices, other than a flare, which commenced construction, reconstruction, or modification after June 11, 1973, and on or before May 14, 2007.

The proposed GTE would be installed after May 14, 2007; therefore the requirements of this section do not apply.

40 CFR Part 60 Subpart Ja - Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007

The requirements of 40 CFR Part 60, Subpart Ja apply to combustion devices at a petroleum refinery that have commenced construction, reconstruction, or modification after May 14, 2007.

The proposed GTE is a combustion device located at a petroleum refinery that will commence construction after May 14, 2007. Therefore, the proposed turbine is subject to the requirements of this subpart.

Section 60.102a - *Emissions Limitations*

This section states that an owner or operator shall not burn in any fuel gas combustion device any fuel gas that contains H_2S in excess of 162 ppmv determined hourly on a 3-hour rolling average basis and H_2S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis (§60.102a(g)(1)(ii)).

The proposed refinery fuel is limited to 5.53 gr-S/100 dscf that is converted to ppmv by the following equation:

$$\frac{5.53\ gr \cdot S}{100\ scf}\left(\frac{lb}{7{,}000\ gr}\right)\frac{379.5\ scf}{lb \cdot mole}\left(\frac{lb \cdot mole}{32\ lb \cdot S}\right) = 9.37x10^{-5}\ or\ 93.7\ ppm\ as\ S$$

Therefore the fuel will be in compliance with this section of the rule and the following previously proposed condition will ensure compliance:

- Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]

Section 60.103a - *Work Practice Standards*

Paragraph (b) states that each owner or operator that operates a fuel gas combustion device or sulfur recovery plant subject to this subpart shall conduct a root cause analysis of any emission limit exceedance or process start-up, shutdown, upset, or malfunction that causes a discharge to the atmosphere in excess of 227 kilograms per day (kg/day) (500 lb per day (lb/day)) of SO_2. For any root cause analysis performed, the owner or operator shall record the identification of the affected facility, the date and duration of the discharge, the results of the root cause analysis, and the action taken as a result of the root cause analysis.

The following condition will ensure compliance with this section:

- The owner or operator shall conduct a root cause analysis succeeding any SO2 discharge to atmosphere that exceeds 500 lb/day. Operator shall record the date and duration of the discharge, the results of the root cause analysis, and the action taken as a result of the root cause analysis. [40 CFR 60.103a]

Section 60.104a - *Performance Tests*

§60.104a(a) - The owner or operator shall conduct a performance test for each FCCU, sulfur recovery plant, and fuel gas combustion device to demonstrate initial compliance with each applicable emissions limit in §60.102a according to the requirements of §60.8. The notification requirements of §60.8(d) apply to the initial performance test and to subsequent performance tests required by paragraph (b) of this section (or as required by the Administrator), but does not apply to performance tests conducted for the purpose of obtaining supplemental data

because of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.

The fuel sulfur limitation will be sufficient to show compliance with this section as sulfur emissions are limited to a level much lower than §60.102a requires:

- Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]

Section 60.105a - *Monitoring of emissions and operations for fluid catalytic cracking units (FCCU) and fluid coking units (FCU)*

This operation does not include *fluid catalytic cracking units or fluid coking units*; therefore the requirements of this section do not apply.

Section 60.106a - *Monitoring of emissions and operations for sulfur recovery plants*

This operation is not part of a sulfur recovery plant; therefore the requirements of this section do not apply.

Section 60.107a – *Monitoring of Emissions and Operations for Fuel Gas Combustion Devices*

§60.107a(2) - The owner or operator of a fuel gas combustion device subject to the H_2S concentration limits in §60.102a(g)(1)(ii) shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H_2S in the fuel gases before being burned in any fuel gas combustion device.

The following condition will be listed on the permit to ensure compliance:

- The owner or operator shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H_2S in the fuel gas. [40 CFR 60.107a, 60.4360, 60.4365, 60.4370, and 60.4415(a)(1)]

Section 60.108a – *Recordkeeping and reporting requirements*

All records required by this subpart are required to be maintained. The following condition will ensure compliance with this section:

- The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [40 CFR 60.108a and District Rules 2201 and 4703]

40 CFR Part 60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines

The requirements of 40 CFR Part 60, Subpart KKKK apply to a stationary combustion turbine with heat input (at peak load) equal to or greater than 10 MMBtu/hr, and that commenced construction, modification or reconstruction after February 18, 2005. This subpart regulates nitrogen oxide (NOx) and sulfur dioxide (SOx) emissions only.

The proposed GTE is rated at >10 MMBtu/hr and will be installed after February 18, 2005. Therefore, the proposed turbine is subject to the requirements of this subpart.

Section 60.4320 *- Standards for Nitrogen Oxides*

Paragraph (a) states that NOx emissions shall not exceed the emission limits specified in Table 1 of this subpart. Table 1 states that modified or reconstructed turbines firing natural gas with a heat input at peak load between 50 MMBtu/hr and 850 MMBtu/hr shall meet a NOx emissions limit of 42 ppmvd @ *15%* 02. This limit is based on 4-hour rolling average or 30-day rolling average as defined in §60.4380(b)(1).

SJR has proposed to meet 2.0 ppmvd NOx @ 15% O2 on three-hour rolling average period in accordance with Rule 4703. SJR is expected to meet this limit. Permit condition enforcing this requirement is provided under Rules 2201 (DELs) and 4703.

Section 60.4330 *- Standards for Sulfur Dioxide*

Paragraph (a) states that if your turbine is located in a continental area, you must comply with one of the following: (1) Operator must not cause to be discharged into the atmosphere from the subject stationary combustion turbine any gases which contain S02 in excess of 110 nanograms per Joule (ng/J) (0.90) pounds per megawatt-hour (lb/MWh» gross output; or (2) Operator must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng S02/J (0.060 lb S02/MMBtu) heat input.
SJR has proposed to burn refinery fuel that will result in maximum potential sulfur emissions equal to 0.0216 lb-SO_2/MMBtu. The following conditions will ensure compliance with the requirements of this section:

- Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]

Section 60.4335 *- NOx Compliance Demonstration, with Water or Steam Injection*

Paragraph (a) states that when a turbine is using water or steam injection to reduce NOx emissions, you must install, calibrate, maintain and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water or steam to fuel being fired in the turbine when burning a fuel that requires water or steam injection for compliance.

SJR is not proposing water or steam injection on this turbine; therefore, the requirements of this section are not applicable.

Section 60.4340 *- NOx Compliance Demonstration, without Water or Steam Injection*

Paragraph (b) states that as an alternative to annual source testing, the facility may install, calibrate, maintain and operate one of the following continuous monitoring systems:

(1) Continuous emission monitoring as described in §60.4335(b) and 60.4345, or (2) Continuous parameter monitoring.

SJR has elected to perform annual source testing as the GTE will not be equipped with CEMS. The following condition will ensure compliance with the requirements of this section:

- Unit shall demonstrate compliance annually with NOx and CO emissions limits with the turbine in operation and not in operation. An annual demonstration of compliance with the turbine in operation is not required in any year in which the turbine is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the turbine. An annual demonstration of compliance with the turbine not in operation is not required in any year in which the turbine operated continuously in conjunction with the duct burner in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the turbine. [40 CFR 60.4340 and District Rules 2201 and 4703]

Section 60.4345 *- CEMS Equipment Requirements*

Paragraph (a) states that each NOx diluent CEMS must be installed and certified according to Performance Specification 2 (PS 2) in Appendix 8 to this part, except the 7 -day calibration drift is based on unit operating days, not calendar days. With state approval, Procedure 1 in Appendix F to this part is not required. Alternatively, a NOx diluent CEMS that is installed and certified according to Appendix A of Part 75 of this chapter is acceptable for use under this subpart. The relative accuracy test audit (RATA) of the CEMS shall be performed on a ppmvd basis.

Paragraph (b) states that as specified in §60.13(e)(2), during each full unit operating hour, both the NOx monitor and the diluent monitor must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point must be obtained with each monitor for each quadrant of the hour in which the unit operates. For unit operating hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points (one in each of two quadrants) are required for each monitor to validate the NOx emission rate for the hour.

Paragraph (c) states that each fuel flow meter shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions. Alternatively, with state approval, fuel flow meters that meet the installation, certification, and quality assurance requirements of Appendix D to Part 75 of this chapter are acceptable for use under this subpart.

Paragraph (d) states that each watt meter, steam flow meter, and each pressure or temperature measurement device shall be installed, calibrated, maintained, and operated according to manufacturer's instructions.

Paragraph (e) states that the owner or operator shall develop and keep on-site a quality assurance (QA) plan for all of the continuous monitoring equipment described in paragraphs (a), (c), and (d) of this section. For the CEMS and fuel flow meters, the owner or operator may, with state approval, satisfy the requirements of this paragraph by implementing the QA program and plan described in section 1 of Appendix B to Part 75 of this chapter.

SJR is not proposing to use CEMS on this unit; therefore the requirements of this section are not applicable.

Section 60.4350 - *CEMS Data and Excess NOx Emissions*

Section 60.4350 states that for purposes of identifying excess emissions:

(a) All CEMS data must be reduced to hourly averages as specified in §60.13(h).

(b) For each unit operating hour in which a valid hourly average, as described in §60.4345(b), is obtained for both NOx and diluent monitors, the data acquisition and handling system must calculate and record the hourly NOx emission rate in units of ppm or lb/MMBtu, using the appropriate equation from Method 19 in Appendix A of this part. For any hour in which the hourly average O2 concentration exceeds 19.0 percent 02 (or the hourly average CO2 concentration is less than 1.0 percent C02), a diluent cap value of 19.0 percent O2 or 1.0 percent CO2 (as applicable) may be used in the emission calculations.

(c) Correction of measured NOx concentrations to 15 percent O2 is not allowed.

(d) If you have installed and certified a NOx diluent CEMS to meet the requirements of Part 75 of this chapter, states can approve that only quality assured data from the CEMS shall be used to identify excess emissions under this subpart. Periods where the missing data substitution procedures in Subpart D of Part 75 are applied are to be reported as monitor downtime in the excess emissions and monitoring performance report required under §60.7(c).

(e) All required fuel flow rate, steam flow rate, temperature, pressure, and megawatt data must be reduced to hourly averages.

(f) Calculate the hourly average NOx emission rates, in units of the emission standards under §60.4320, using either ppm for units complying with the concentration limit or the equations 1 (simple cycle turbines) or 2 (combined cycle turbines) listed in §60.4350, paragraph (f).

SJR is not proposing to operate CEMS in conjunction with this cogen; therefore the requirements of this section do not apply.

Section 60.4355 *- Parameter Monitoring Plan*

This section describes the continuous monitoring plan required for operators using this method to comply with §60.4335 and §60.4340. The operator is not subject to §40.4335 and has not elected to continuously monitor parameters in lieu of annual source testing. Therefore a parameter monitoring plan is not required.

Sections 60.4360, 60.4365 and 60.4370 *- Monitoring of Fuel Sulfur Content*

Section 60.4360 states that an operator must monitor the total sulfur content of the fuel being fired in the turbine, except as provided in §60.4365. The sulfur content of the fuel must be determined using total sulfur methods described in §60.4415. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084, D4810, D5504, or D6228, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see §60.17), which measure the major sulfur compounds, may be used.

Section 60.4365 states that an operator may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng *S02/J* (0.060 lb S02/MMBtu) heat input for units located in continental areas and 180 ng *S02/J* (0.42 lb S02/MMBtu) heat input for units located in no continental areas or a continental area that the Administrator determines does not have access to natural gas and that the removal of sulfur compounds would cause more environmental harm than benefit. You must use one of the following sources of information to make the required demonstration:

(a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content for oil use in continental areas is 0.05 weight percent (500 ppmw) or less and 0.4 weight percent (4,000 ppmw) or less for no continental areas, the total sulfur content for natural gas use in continental areas is 20 grains of sulfur or less per 100 standard cubic feet and 140 grains of sulfur or less per 100 standard cubic feet for no continental areas, has potential sulfur emissions of less than less than 26 ng *S02/J* (0.060 lb S02/MMBtu) heat input for continental areas and has potential sulfur emissions of less than less than 180 ng *S02/J* (0.42 lb S02/MMBtu) heat input for no continental areas; or

(b) Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 26 ng *S02/J* (0.060 lb S02/MMBtu) heat input for continental areas or 180 ng *S02/J* (0.42 lb S02/MMBtu) heat input for non-continental areas. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of Appendix D to Part 75 of this chapter is required.

Section 60.4370 states that the frequency of determining the sulfur content of the fuel must be as follows:

(a) *Fuel Oil:* For fuel oil, use one of the total sulfur sampling options and the associated sampling frequency described in sections 2.2.3, 2.2.4.1, 2.2.4.2, and 2.2.4.3 of Appendix D to Part 75 of this chapter *(i.e.,* flow proportional sampling, daily sampling, sampling from the unit's

storage tank after each addition of fuel to the tank, or sampling each delivery prior to combining it with fuel oil already in the intended storage tank).

(b) *Gaseous Fuel:* If you elect not to demonstrate sulfur content using options in §60.4365, and the fuel is supplied without intermediate bulk storage, the sulfur content value of the gaseous fuel must be determined and recorded once per unit operating day.

(c) *Custom Schedules:* Notwithstanding the requirements of paragraph (b) of this section, operators or fuel vendors may develop custom schedules for determination of the total sulfur content of gaseous fuels, based on the design and operation of the affected facility and the characteristics of the fuel supply. Except as provided in paragraphs (c)(1) and (c)(2) of this section, custom schedules shall be substantiated with data and shall be approved by the Administrator before they can be used to comply with the standard in §60.4330.

SJR is required to continuously monitor the sulfur content of the fuel due to Subpart Ja. As this previously discussed monitoring is more stringent, it will be listed for compliance with this section as well:

- The owner or operator shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H_2S in the fuel gas. [40 CFR 60.107a, 60.4360, 60.4365 and 60.4370]

Section 60.4380 *- Excess NOx Emissions and Monitor Downtime*

Section 60.4380 establishes reporting requirements for periods of excess emissions and monitor downtime. Paragraph (a) lists requirements for operators choosing to monitor parameters associated with water or steam to fuel ratios. As discussed above, SJR is not proposing to monitor surrogate parameters associated with water or steam to fuel ratios to predict NOx emissions. Therefore, the requirements of this paragraph are not applicable.

Paragraph (b) states that for turbines using CEMS:

(1) An excess emissions is any unit operating period in which the 4-hour or 30-day rolling average NOx emission rate exceeds the applicable emission limit in §60.4320. For the purposes of this subpart, a "4-hour rolling average NOx emission rate" is the arithmetic average of the average NOx emission rate in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given hour and the three unit operating hour average NOx emission rates immediately preceding that unit operating hour. Calculate the rolling average if a valid NOx emission rate is obtained for at least 3 of the 4 hours. For the purposes of this subpart, a "30-day rolling average NOx emission rate" is the arithmetic average of all hourly NOx emission data in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given day and the twenty-nine unit operating days immediately preceding that unit operating day. A new 30-day average is calculated each unit operating day as the average of all hourly NOx emissions rates for the preceding 30 unit operating days if a valid NOx emission rate is obtained for at least 75 percent of all operating hours.

(2) A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NOx concentration, CO2 or O2

concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if you will use this information for compliance purposes.

(3) For operating periods during which multiple emissions standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.

Paragraph (c) lists requirements for operators who choose to monitor combustion parameters that document proper operation of the NOx emission controls.

SJR is not operating CEMS or monitor parameters; therefore the requirements of these paragraphs are not applicable.

Section 60.4385 - Excess *SOx Emissions and Monitoring Downtime*

Section 60.4385 states that if an operator chooses the option to monitor the sulfur content of the fuel, excess emissions and monitoring downtime are defined as follows:

(a) For samples of gaseous fuel and for oil samples obtained using daily sampling, flow proportional sampling, or sampling from the unit's storage tank, an excess emission occurs each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the combustion turbine exceeds the applicable limit and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit.

(b) If the option to sample each delivery of fuel oil has been selected, you must immediately switch to one of the other oil sampling options (Le., daily sampling, flow proportional sampling, or sampling from the unit's storage tank) if the sulfur content of a delivery exceeds 0.05 weight percent. You must continue to use one of the other sampling options until all of the oil from the delivery has been combusted, and you must evaluate excess emissions according to paragraph (a) of this section. When all of the fuel from the delivery has been burned, you may resume using the as-delivered sampling option.

(c) A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.

SJR is expected to follow the definitions and procedures specified above for determining periods of excess SO_X emissions. Compliance is expected with this section.

Sections 60.4375 and 60.4395 - *Reports Submittal*

Section 60.4375(a) states that for each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under this subpart, you must submit reports of excess emissions and monitor downtime, in accordance with

§60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction.

Section 60.4375(b) states that for each affected unit that performs annual performance tests in accordance with §60.4340(a), you must submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test.

Section 60.4395 states All reports required under §60.7(c) must be postmarked by the 30th day following the end of each 6-month period. SJR is proposing to maintain records and submit reports in accordance with the requirements specified in these sections.

The following condition will ensure compliance with the requirements of this section:

- The owner or operator shall submit a written report of continuous fuel H2S monitoring for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess H2S limits, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the monitor was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [40 CFR 60.4375(a) and 60.4395]

Section 60.4400 *- NOx Performance Testing*

Section 60.4400, paragraph (a) states that an operator must conduct an initial performance test, as required in *§60.B.* Subsequent NOx performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test).

SJR will be required to source test in accordance with the methods and procedures specified in paragraphs (1), (2), and (3) initially and annually thereafter; therefore the following condition will ensure compliance with this section:

- Source testing to determine compliance with the NOx, CO, and NH3 emission rates (ppmvd @ 15% O2) during normal operation shall be conducted with the GTE and duct burner firing concurrently and with the duct burner fired solely within 90 days of initial startup under this permit and annually thereafter. [District Rules 2201and 40 CFR 60.4400(a)]
- The following test methods shall be used: NOx - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, and 40 CFR 60.4400 (1)(i)]

Section 60.4405 *-Initial CEMS Relative Accuracy Testing*

Section 60.4405 states that if you elect to install and certify a NOx-diluent CEMS, then the initial performance test required under §60.8 may be performed in the alternative manner described in paragraphs (a), (b), (c) and (d).

SJR will not be operating CEMS on this unit; therefore the requirements of this section are not applicable.

Section 60.4410 *- Parameter Monitoring Ranges*

Section 60.4410 sets forth requirements for operators that elect to monitor combustion parameters or parameters indicative of proper operation of NOx emission controls. As discussed, SJR is proposing annual source testing and frequent NOx and CO testing with a portable analyzer; therefore, the requirements of this section are not applicable and no further discussion is required.

Section 60.4415 *- SOx Performance Testing*

Section 60.4415 states that an operator must conduct an initial performance test, as required in *§60.B.* Subsequent S02 performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). There are three methodologies that you may use to conduct the performance tests.

(1) If you choose to periodically determine the sulfur content of the fuel combusted in the turbine, a representative fuel sample would be collected following ASTM 05287 (incorporated by reference, see §60.17) for natural gas or ASTM 04177 (incorporated by reference, see §60.17) for oil. Alternatively, for oil, you may follow the procedures for manual pipeline sampling in section 14 of ASTM 04057 (incorporated by reference, see §60.17). The fuel analyses of this section may be performed either by you, a service contractor retained by you, the fuel vendor, or any other qualified agency. Analyze the samples for the total sulfur content of the fuel using:

(i) For liquid fuels, ASTM 0129, or alternatively 01266, 01552, 02622, 04294, or 05453 (all of which are incorporated by reference, see §60.17); or

(ii) For gaseous fuels, ASTM 01072, or alternatively 03246, 04084, 04468, 04810, 06228, 06667, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see §60.17).

SJR will continuously monitor sulfur content of the fuel combusted in the turbine. The sulfur content will be determined using the methods specified above. The following condition will ensure compliance with the requirements of this section:

- The owner or operator shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H_2S in the fuel gas. [40 CFR 60.107a, 60.4360, 60.4365, 60.4370, and 60.4415(a)(1)]

Methodologies (2) and (3) are applicable to operators that elect to measure the S02 concentration in the exhaust stream. SJR is not proposing to measure the S02 in the exhaust stream of the turbine. Therefore, the requirements of these methodologies are not applicable and no further discussion is required.

Compliance is expected with this Subpart.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to cogeneration operations.

Rule 4101 Visible Emissions

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

The following condition will remain on the facility-wide permit to ensure compliance with this rule:

- No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (12/17/92), by using EPA method 9. If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and County Rules 401 (in all eight counties in the San Joaquin Valley)]

Rule 4102 Nuisance

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

The following condition will remain on the facility-wide permit to ensure compliance with this rule:

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

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

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-36-115-0	0.02 per million	No

Discussion of T-BACT

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

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

The following conditions will ensure ongoing compliance:

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

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.

As this equipment is fired on gaseous fuel only, compliance is expected. The following conditions will ensure ongoing compliance with this rule:

S-36-1 and '-37:

- Particulate matter emissions shall not exceed 0.1 grain/dscf, 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3]

S-36-42:

- Particulate matter emissions for each heater shall not exceed 0.1 grain/dscf, 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]

S-36-115:

- Emissions from the cogeneration system, except during periods of startup and shutdown, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0071 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx, CO and VOC emission limits are based on 1-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]

- Duct burner emissions, when operated without the turbine operating, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0076 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO_2, NO_2, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter.

Existing units are currently in compliance with this rule. The proposed cogeneration unit emissions are compared to the rule limits in the table below:

District Rule 4301 Limits (lb/hr)			
Pollutant	**NO_2**	**Total PM**	**SO_2**
S-36-115	4.10	2.52	1.37
Rule Limit (lb/hr)	140	10	200

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, the following condition, previously discussed, will ensure compliance with this rule:

- Emissions from the cogeneration system, except during periods of startup and shutdown, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0071 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx, CO and VOC emission limits are based on 1-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]

- Duct burner emissions, when operated without the turbine operating, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0076 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]

- Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]

Rule 4305 Boilers, Steam Generators and Process Heaters – Phase II

The process heaters in this project are gas-fired with a minimum individual heat input of 16.5 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, these units are subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2.*

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

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

Section 4.1.4 of this Rule states:

> *Unfired or fired waste heat recovery boilers that are used to recover or augment heat from the exhaust of combustion turbines or internal combustion engines.*

The proposed duct burner is used to augment heat from the exhaust of the combustion turbine; therefore, this rule does not apply to the equipment listed on S-36-115.

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

The process heaters in this project are gas-fired with a minimum individual heat input of 16.5 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, these units are subject to District Rule 4306.

Process heaters S-36-1 and '-42 were found to be in full compliance with this rule during project S-1080240.

Section 4.1.4 of this Rule states:

> *Unfired or fired waste heat recovery boilers that are used to recover or augment heat from the exhaust of combustion turbines or internal combustion engines.*

The proposed duct burner is used to augment heat from the exhaust of the combustion turbine; therefore, this rule does not apply to the equipment listed on S-36-115.

The following discussion will evaluate the equipment listed on S-36-37 for compliance with this rule.

Section 5.1, NO_X and CO Emissions Limits

Section 5.1.1 requires that except for units subject to Sections 5.2, NOx and carbon monoxide (CO) emissions shall not exceed the limits specified in the following table. All ppmv emission limits specified in this section are referenced at dry stack gas conditions and 3.00 percent by volume stack gas oxygen. Emission concentrations shall be corrected to 3.00 percent oxygen in accordance with Section 8.1.

Refinery process heaters with heat inputs greater than 5 MMBtu/hr and less than 56 MMBtu/hr are subject to the emission limits of Section 5.1.1, Table 1, Category C, from District Rule 4306.

Rule 4306 Emissions Limits				
Category	Operated on gaseous fuel		Operated on liquid fuel	
	NO_X Limit	CO Limit	NO_X Limit	CO Limit
D. Refinery units with a rated heat input greater than 5 MMBtu/hr up to 65 MMBtu/hr	30 ppmv or 0.036 lb/MMBtu	400 ppmv	40 ppmv or 0.052 lb/MMBtu	400 ppmv

The applicant has proposed the following limits for the natural gas-fired unit:

- the proposed NO_x emission factor is 30 ppmvd @ 3% O_2, and
- the proposed CO emission factor is 400 ppmvd @ 3% O_2.

Therefore, compliance with Section 5.1 of District Rule 4306 is expected. A permit condition listing the emissions limits will be listed on permit as follows:

- Except during periods of start-up and shutdown, emissions from 16.5 MMBtu/hr heater LH-1 shall not exceed any of the following: NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 4305, 4306, and 4351]
- Except during periods of start-up and shutdown, emissions from 12.6 MMBtu/hr heater LH-2 shall not exceed any of the following: NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2520, 9.4.2, 4305, 4306, and 4351]
- Except during periods of start-up and shutdown, emissions from 12.0 MMBtu/hr heater LH-3 shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.01 lb/MMBtu; NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 4305, 4306, and 4351]

Section 5.2, Low Use

The unit annual heat input will exceed the 9 billion Btu heat input per calendar year criteria limit addressed by this section. Since the unit is not subject to Section 5.2, the requirements of this section do not apply to the unit.

Section 5.4, Monitoring Provisions

Section 5.4.2 requires that permit units subject to District Rule 4306, Section 5.1 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO_X, CO and O_2, or install and maintain APCO-approved alternate monitoring.

In order to satisfy the requirements of District Rule 4306, the applicant has proposed to use pre-approved alternate monitoring scheme A (according to District Policy SSP-1105), which requires to periodically monitor NO_X, CO, and O_2 exhaust emissions concentrations, 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.

- The stack concentration of NOx (as NO2), CO, and O2 of heaters LH-1, LH-2, and LH-3 shall be measured at least on a monthly basis using District approved portable analyzers. In-stack O2 monitors are acceptable for O2 measurement. [District Rules 4305, 4306, and 4351]
- If the NOx or CO concentrations of heaters LH-1, LH-2, and LH-3, as measured by the portable analyzer, exceed the allowable emissions rate, the permittee shall notify the District and return the NOx and CO concentrations to the allowable emissions rate as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed the allowable emissions rate after one hour, the permittee shall conduct an emissions test within 60 days, utilizing District approved test methods, to determine compliance with the applicable emission limits. [District Rules 4305, 4306, and 4351]
- 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 4351]
- The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements on heaters LH-1, LH-2, and LH-3, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records must also include a description of any corrective action taken to maintain the emissions within an acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made available for District inspection upon request. [District Rules 4305, 4306, and 4351]

Since the unit is not subject to the requirements listed in Section 5.2.1 or 5.2.2, it is not subject to Section 5.4.3 requirements.

Since the unit is not subject to the requirements of category H (maximum annual heat input between 9 billion and 30 billion Btu/year) listed in Section 5.1.1, it is not subject to Section 5.4.4 requirements.

Section 5.5, Compliance Determination

Section 5.5.1 requires that the operator of any unit shall have the option of complying with either the applicable heat input (lb/MMBtu) emission limits or the concentration (ppmv) emission limits specified in Section 5.1. The emission limits selected to demonstrate compliance shall be specified in the source test proposal pursuant to Rule 1081 (Source Sampling). Therefore, the following condition will be listed on the permit as follows:

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

Section 5.5.2 requires that all emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. Therefore, the following permit condition will be listed on the permit as follows:

- All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305 and 4306]

Section 5.5.4 requires that for emissions monitoring pursuant to Sections 5.4.2, 5.4.2.1, and 6.3.1 using a portable NO_X analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings 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.

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

- 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 4351]

Section 5.5.5 requires that for emissions source testing performed pursuant to Section 6.3.1 for the purpose of determining compliance with an applicable standard or numerical limitation of this rule, the arithmetic average of three (3) 30-consecutive-minute test runs shall apply. If two (2) of three (3) runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. Therefore, the following permit condition will be listed on the permit as follows:

- Emissions for the LH-1, LH-2, and LH-3 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 Rules 2520, 9.4.2, 4305, and 4306]

Section 6.1, Recordkeeping

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.3 shall be maintained for five calendar years and shall be made available to the APCO upon request. Failure to maintain records or information contained in the records that demonstrate noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

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

- The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements on heaters LH-1, LH-2, and LH-3, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records must also include a description of any corrective action taken to maintain the emissions within an acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made available for District inspection upon request. [District Rules 4305, 4306, and 4351]

Section 6.1.2 requires that the operator of a unit subject to Section 5.2 shall record the amount of fuel use at least on a monthly basis. Since the unit is not subject to the requirements listed in Section 5.2, it is not subject to Section 6.1.2 requirements.

Section 6.1.3 requires that the operator of a unit subject to Section 5.2.1 or 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics have been performed. The unit is not subject to Section 6.1.3. Therefore, the requirements of this section do not apply to the unit.

Section 6.2, Test Methods

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

Pollutant	Units	Test Method Required
NO_X	ppmv	EPA Method 7E or ARB Method 100
NO_X	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O_2	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4

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

- 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]

- 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, 4306, and 4351]

Section 6.3, Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.1 and 5.2.3 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months. As well, testing of the unit when firing on LPG will be required if the annual fuel usage exceeds the equivalent of firing the unit 100 hours at full fire. Therefore, the following conditions will be placed on the permit.

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

- Source testing for NOx and CO emissions shall be conducted within 60 days of startup, and not less than once every 12 months, except as provided below. [District Rules 4305, 4306, and 4351]
- Source testing for 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, 4306, and 4351]
- If permittee fails any source test for NOx and CO emissions 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, 4306, and 4351]

In addition, since the applicant has proposed to use pre-approved Alternate Monitoring Scheme "A" using a portable analyzer, the tune-up requirements listed in Section 6.3.1 are not applicable to the steam generator. Section 6.3.1 also requires that, during the 36-month source testing interval, the owner/operator shall monthly monitor the operational characteristics recommended by the unit manufacturer. Since the pre-approved Alternate Monitoring Scheme "A" using a portable analyzer requires monthly monitoring of NO_X, CO, and O_2 exhaust emissions concentrations, operational characteristics monitoring requirement is satisfied, and no further discussion is required.

Conclusion

Conditions will be incorporated into the permit in order to ensure compliance with each section of this rule, see attached draft permit. Therefore, compliance with District Rule 4306 requirements is expected.

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

This rule limits NOx, CO, SO2 and PM10 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.

These units are all rated at greater than 5 MMBtu/hr heat input. Therefore this rule applies.

SJR has submitted a Rule 4320 emissions control plan where they have identified the following for complying in the future with this rule:

S-36-1: Will install SCR before applicable deadline
S-36-37: Heaters will be replaced by cogeneration unit
S-36-42: SJR will continue to pay the emissions fee as allowed by the rule

Therefore compliance with the rule is expected.

Rule 4351 Boilers, Steam Generators and Process Heaters – Phase III

This rule applies to boilers, steam generators, and process heaters at NO_X Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. As this rule is less stringent than Rule 4306, the emission limits, monitoring provisions, and testing requirements of this rule will be satisfied when the units are operated in compliance with Rule 4306. Therefore, compliance with this rule is expected.

Rule 4703 Stationary Gas Turbines

The provisions of this rule apply to all stationary gas turbine systems, which are subject to District permitting requirements, and with ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3,000,000 Btu per hour, except as provided in Section 4.0. The subject turbines are subject to District permitting and maximum heat input ratings are above 3 MMBtu/hr; therefore, these turbines are subject to the provisions of this rule.

Section 5.1.3 requires the owner or operator to meet 5 ppmvd NOx @ 15% O_2. The applicant has proposed to meet 2 ppmvd NOx @ 15% O_2.

Section 5.2 requires the owner or operator to meet 200 ppmvd CO @ 15% O_2. The applicant has proposed to meet 4 ppmvd CO @ 15% O_2. The following conditions will be included on the permit to ensure compliance:

- Emissions from the cogeneration system, except during periods of startup and shutdown, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0071 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx, CO and VOC emission limits are based on 1-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]

- Duct burner emissions, when operated without the turbine operating, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0076 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703]

Section 5.3 specifies requirements for transitional periods. The following conditions will be included on the permit to ensure compliance:

- Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703]
- Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]

Section 6.2.1 requires the owner or operator to either install, operate, and maintain continuous emissions monitoring equipment for NOx and oxygen or install and maintain APCO-approved alternate monitoring (see Appendix K for previously approved weekly monitoring by portable analyzer on 5.86 MW cogeneration unit). The applicant has requested the use of an alternate handheld monitor.

The following conditions will be listed on the ATC:

- If the ammonia injection rate is less than the minimum ammonia injection rate demonstrated during the initial compliance test, the permittee shall return the ammonia injection rate above the minimum ammonia injection rate established during compliance testing as soon as possible, but no longer than 8 hours after detection. If the ammonia injection rate is not returned above the minimum ammonia injection rate established during compliance testing within 8 hours, the permittee shall notify the District within the following 1 hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced ammonia injection rate. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must 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 2201 and 4703]
- The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, O2, and NH3 weekly. If compliance with the NOx and CO emissions is demonstrated for eight (8) consecutive weeks, then the monitoring frequency will be reduced to monthly. If deviations are observed in two consecutive months, monitoring shall revert to weekly until 8 consecutive weeks show no deviations. 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 one (1) day of restarting the unit unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the week if on a weekly monitoring schedule. [District Rules 2201 and 4703]
- If the NOx and/or CO concentrations, as measured by the permittee with a portable analyzer, exceed the permitted emission limits, the permittee shall notify the District and return the NOx and CO concentrations to the permitted emission limits as soon as possible but no longer than eight (8) hours after detection. If the permittee's portable analyzer readings continue to exceed the permitted emissions limits after eight (8) hours, the permittee shall notify the District within the following one (1) hour, and conduct a certified source test within 60 days to demonstrate compliance with the permitted emissions limits. In lieu of conducting a source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must 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 2201 and 4703]

- Compliance with ammonia emission limit shall be demonstrated utilizing one of the following procedures: 1) The permittee may utilize a continuous in-stack ammonia monitor to verify compliance with the ammonia emissions limit. 2) The permittee may utilize a District-approved calculation method using measured surrogate parameters to determine the daily ammonia emissions in ppmvd @ 15% O2. The permittee shall submit a detailed calculation protocol or monitoring plan for District Approval at least 60 days prior to the commencement of operation. [District Rules 2201, 4102, and 4703]

Section 6.2.2 requires the permittee to monitor operational characteristics recommended by the turbine manufacturer or emission control system supplier, and approved by the APCO. The permittee will be required to monitor operational characteristics recommended by the turbine manufacturer or emission control system supplier. Prior to the issuance of a Permit to Operate, the owner shall submit to the District information correlating the control system operating parameters to the associated measured NOx output.

The following condition is included on the ATC:

- Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NOx output. [District Rule 4703, 6.2.2]

Section 6.2.4 requires the owner or operator to maintain all records for a period of five years from the date of data entry and shall make such records available to the APCO upon request. Conditions will be included to satisfy compliance with this section.

- The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [40 CFR 60.108a and District Rules 2201 and 4703]

Section 6.2.6 requires the owner or operator to maintain a daily log that includes local start-up time and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used.

Section 6.2.8 requires that the operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown.

The following condition will be included on the ATC:

- Permittee shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, quantity of fuel used, and duration of all start-up and shutdown periods. [District Rule 4703, 6.2.6, 6.2.8]

Section 6.2.9 requires that the operator of a unit subject to Section 5.1.3.3 shall also keep additional records. The turbine is not subject to section 5.1.3.3.

Section 6.2.10 requires that the operator of a unit subject to Section 6.5.2 (public service units) shall identify in the stationary gas turbine system operating log the date and start time and end time that the unit was operated pursuant to Section 6.5.2 and keep a copy of the emergency declaration. The turbine is not subject to section 6.5.2.

6.2.11 The operator of a unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period. The following condition will be included on the ATC:

- The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up and each shutdown time period; and, on a monthly basis, fuel HHV. [District Rules 2201 and 4703]

6.2.12 The operator of a unit subject to subsection (b) of Table 5-3 (pipeline gas turbine) shall keep records of the date, time and duration of each steady state period and non-steady state period and the quantity of fuel used during each period. The turbine is not subject to this subsection of Table 5-3.

Section 6.3 and 6.3.3 requires the owner or operator to perform annual source test to measure NOx and CO emissions. Source testing conditions will be placed on the permit to satisfy compliance with this section. The following conditions are included on the ATC:

- Source testing to determine compliance with the NOx, CO, and NH3 emission rates (ppmvd @ 15% O2) during normal operation shall be conducted with the GTE and duct burner firing concurrently and with the duct burner fired solely within 90 days of initial startup under this permit and annually thereafter. [District Rules 2201and 40 CFR 60.4400(a)]

Section 6.4 identifies various test methods to measure NO_x, CO, O_2, HHV and LHV of gaseous fuels. The following conditions are included on the ATC:

- HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703]

- The following test methods shall be used: NOx - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, and 40 CFR 60.4400 (1)(i)]

Compliance is expected with this Rule.

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.

Existing units are currently in compliance with this rule. Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions for the cogeneration unit are calculated as follows (using worst case emission factors from burning refinery gas: 0.0216 lb-SO_X/MMBtu):

Volume $SO_2 = \frac{n\,RT}{P}$

With:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi
R (Universal Gas Constant) = $\frac{10.73\,psi \cdot ft^3}{lb \cdot mol \cdot °R}$

$$\frac{0.0216lb-SOx}{MMBtu} \times \frac{MMBtu}{8{,}578dscf} \times \frac{1lb \cdot mol}{64lb} \times \frac{10.73\,psi \cdot ft^3}{lb \cdot mol \cdot °R} \times \frac{520°R}{14.7psi} \times \frac{1{,}000{,}000 \cdot parts}{million} = 15\frac{parts}{million}$$

$$SulfurConcentration = 15\frac{parts}{million} < 2{,}000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected and the following conditions will be listed on the permit:

- Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]
- Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801]

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

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

Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*.

The Best Performance Standards (see requirements in Appendix G) for this cogeneration plant is an emissions performance design standard of 700 lb-CO_2e per MWh of usefule energy at ISO conditions. Performance of this cogeneration system is calculated as follows:

Assumptions:

- Maximum heat input is 348.56 MMBtu/hr (Annual Average Heat Input)
- Natural gas BTU content is 1,000 Btu/scf
- Greenhouse Gas Factors (ARB Greenhouse Gas Emission Factors for Combustion of Natural Gas):
  - CO_2 = 52.87 kg/MMBtu
  - CH_4 = 0.0009 kg/MMBtu (CO_2e:CH_4 ratio of 21:1)
  - N_2O = 0.0001 kg/MMBtu (CO_2e:N_2O ratio of 310:1)
- Electrical Generation = 19.9 MWh
- Useful Thermal Energy Conversion Factor = 1 MWh/3.412 MMBtu
- Steam (44,000 lb/hr @ 150 psig) = 331 Btu/lb (enthalpy of saturated water at 150 psig)
- Hot Oil System = 167 MMBtu/hr

CO_2 = (52.87 kg/MMBtu) x (2.20 lb/kg) x (348.56 MMBtu/hr) = 40,542.41 lb-CO_2/hr
CH_4 = (0.0009 kg/MMBtu) x (2.20 lb/kg) x (348.56 MMBtu/hr) = 0.69 lb-CH_4/hr
N_2O = (0.0001 kg/MMBtu) x (2.20 lb/kg) x (348.56 MMBtu/hr) = 0.08 lb-N_2O/hr

The total equivalent CO_2 factor (CO_2e) is calculated by converting CH_4 and N_2O and summing all equivalent factors as follows:

CO_2e = 40,542.41 lb-CO_2/hr + (0.69 lb-CH_4/hr x 21) + (0.08 lb-N_2O/hr x 310)
= **40,581.70 lb-CO_2e/hr**

Useful Activity is calculated as follows:

Steam, MMBtu/hr = (331 Btu/lb) x (44,000 lb/hr) x (MMBtu/1,000,000 Btu)
= 14.6 MMBtu/hr

Useful Thermal Energy = (167 MMBtu/hr + 14.6 MMBtu/hr) x (1 MWh/3.412 MMBtu)
= 53 MWh

Emission Performance = 40,581.70 lb-CO_2e/(19.9 MWh + 53 MWh)
= **577 lb-CO_2e/MWh**

This unit produces less equivalent greenhouse gases per unit of useful activity than is acceptable; therefore, this cogeneration system meets the District's Best Performance Standards (see Appendix G) for this class and category of a greenhouse gas emissions unit. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period and EPA review, issue Authorities to Construct S-36-1-15, '-37-14, '-42-10, and '-115-0 subject to the permit conditions on the attached draft Authorities to Construct in Appendix L.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-36-1-15	3020-02-H	79.2 MMBtu/hr	$1,030.00
S-36-37-14	3020-02-H	41.1 MMBtu/hr	$1,030.00
S-36-42-10	3020-02-H	25.0 MMBtu/hr	$1,030.00
S-36-115-0	3020-08A-E	19,900 kW	$5,109.00

Appendices

A: Current PTOs
B: SSPE1 Tabulation
C: Compliance Certification
D: Facility Plot Plan
E: Fuel Records
F: Source Test Results
G: Best Performance Standard for Cogeneration Plants
H: BACT Guidelines
I: BACT Analysis
J: HRA/AAQA Summary
K: Approved Alternate Monitoring
L: Draft ATCs

Appendix A

Current PTOs

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-36-1-14 **EXPIRATION DATE:** 08/31/2006

SECTION: NE24 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
79.2 MMBTU/HR ATMOSPHERIC/VACUUM CRUDE UNIT #4 WITH PREFLASH COLUMN, FRACTIONATOR, VACUUM DISTILLATION COLUMN WITH MECHANICAL VACUUM PRODUCING SYSTEM, 27 MMBTU/HR GAS/OIL/WASTE GAS FIRED NATURAL DRAFT VACUUM HEATER #VH-4 WITH THREE ZEECO CLSF 11 LOW NOX BURNERS AND 52.2 MMBTU/HR GAS/OIL FIRED NATURAL DRAFT HEATER #4 WITH ZEECO MODEL CLSF LOW NOX BURNERS

PERMIT UNIT REQUIREMENTS

1. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4305] Federally Enforceable Through Title V Permit
2. The duration of each startup and shutdown period for the 52.2 MMBtu/hr crude heater #4 shall not exceed 8.0 hours and 2.0 hours respectively. Short term NOx and CO emissions limits (lb/MM Btu or ppmv @ 3% O2) shall not apply during periods of startup and and shutdown. [District Rules 2201, 4305, 4360 and 4351] Federally Enforceable Through Title V Permit
3. The duration of each startup and shutdown period for the 27.0 MMBtu/hr vacuum heater VH-4 shall not exceed 9.0 hours and 2.0 hours respectively. Short term NOx and CO emissions limits (lb/MM Btu or ppmv @ 3% O2) shall not apply during periods of startup and and shutdown. [District Rules 2201, 4305, 4360 and 4351] Federally Enforceable Through Title V Permit
4. All equipment shall be constructed, maintained, and operated according to the specifications and plans contained in the permit application except as otherwise specified herein. [District NSR Rule] Federally Enforceable Through Title V Permit
5. Natural gas combusted in crude heater #4 and the vacuum heater shall be of PUC quality. [District Rule 2201] Federally Enforceable Through Title V Permit
6. The burning of fuel oil in crude heater #4 and vacuum heater shall only be performed during periods of involuntary natural gas curtailments and for equipment testing. [District Rules 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
7. The burning of fuel oil in each heater is limited to 168 cumulative hours in a calendar year plus 48 hour per calendar year for equipment testing of operation during natural gas curtailments. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
8. Vacuum system exhaust gas emissions shall be controlled by incineration in the 27 MMBtu/hr vacuum heater (VH-4). [District Rule 4453 and Kern County Rule 414.2] Federally Enforceable Through Title V Permit
9. Heat exchangers utilizing cooling water shall be operated and maintained as to prevent VOC emissions from cooling towers. [District NSR Rule] Federally Enforceable Through Title V Permit
10. Gas firing emissions from 52.2 MMBtu/hr crude heater #4 shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.01 lb/MMBtu; NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

11. Oil firing emissions from 52.2 MMBtu/hr crude heater #4 shall not exceed any of the following limits: 11.56 lb-PM10/1000 gal; SOx (as SO2): 172.7 lb/1000 gal; NOx (as NO2): 0.215 lb/MM Btu; VOC: 1.12 lb/1000 gal; or CO : 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305 and 4306] Federally Enforceable Through Title V Permit
12. Gas firing emissions from 27 MMBtu/hr vacuum heater shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.0075 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
13. Oil firing emissions from 27 MMBtu/hr vacuum heater shall not exceed any of the following: PM10: 11.56 lb/1000 gal; SOx (as SO2): 172.7 lb/1000 gal; NOx (as NO2): 0.215 lb/MM Btu; VOC: 1.12 lb/1000 gal; or CO : 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305 and 4306] Federally Enforceable Through Title V Permit
14. NOx emissions when gas firing 27 MMBtu/hr vacuum heater shall not exceed 30 ppmv @ 3% O2. [Stipulated Abatement Order S-00-40P, District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
15. Source testing for NOx and CO emissions shall be conducted not less than once every 12 months, except as provided below. [District Rules 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
16. Source testing for 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 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
17. If permittee fails any compliance demonstration for NOx and/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 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
18. 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 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
19. 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
20. 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
21. 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
22. 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, 4306 and 4351] Federally Enforceable Through Title V Permit
23. The stack concentration of NOx (as NO2), CO, and O2 shall be measured at least on a monthly basis using District approved portable analyzers. In-stack O2 monitors are acceptable for O2 measurement. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
24. If the NOx and/or CO concentrations, as measured by the portable analyzer, exceed the allowable emissions rate, the permittee shall notify the District and return the NOx and CO concentrations to the allowable emissions rate as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed the allowable emissions rate after one hour, the permittee shall conduct an emissions test within 60 days, utilizing District approved test methods, to determine compliance with the applicable emissions limits. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit
25. 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 must also include a description of any corrective action taken to maintain the emissions within an acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made available for District inspection upon request. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

26. Permittee shall maintain records of fuel hhv and cumulative annual fuel use for a period of five years and shall make such records readily available for District inspection upon request. [District Rule 4351] Federally Enforceable Through Title V Permit

27. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(Last Amended December 19,1993). [District Rule 1081, and Kern County Rules 108.1] Federally Enforceable Through Title V Permit

28. 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(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

29. 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, 9.5.2] Federally Enforceable Through Title V Permit

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

31. Source testing shall be performed using EPA Method 5 while firing on residual oil (including crude or topped crude) to demonstrate compliance with PM emission limits. Source testing shall be performed within 90 days of firing on residual oil unless such testing has been performed within the 12 month period prior to firing on said oil and the test results showed compliance with PM emission limits of this permit. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

32. Emissions of sulfur compounds from each heater shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or on diesel fuel not exceeding 0.5% sulfur by weight; or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 2520, 9.4.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

33. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

34. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

35. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

36. If the unit is fired on noncertified liquid fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the liquid fuel being fired in the unit shall be determined using ASTM D 2880. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

37. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by: ASTM D 240 or D 2382 for liquid hydrocarbon fuels; ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2520, 9.4.2; 4305, 6.2.1; 4306, 6.2.1 and 4351, 6.2.1] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

38. 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). To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas or diesel fuel not exceeding 0.5% sulfur by weight; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels or 3.0% by weight for residual oil (including crude or topped crude); or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

39. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rule 2520, 9.4.2, 4305, 5.0, 8.2, 4306, 5.0, 8.2 and 4351, 8.1] Federally Enforceable Through Title V Permit

40. The portable analyzer shall be calibrated daily when in use with a two-point calibration method (zero and span). Calibration shall be performed with certified gases. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

41. 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, 9.4.2] Federally Enforceable Through Title V Permit

42. Annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4351, 6.3] Federally Enforceable Through Title V Permit

43. The following conditions must be met for representative unit(s) to be used to test for NOx 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 Rules 2520, 9.4.2 and 4305, 6.3.2] Federally Enforceable Through Title V Permit

44. All units in a group for which representative units are source for NOx 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 each unit of the group including all preventative and corrective maintenance work done. [District Rule 2520, 9.4.2 and 4305, 6.3.2] Federally Enforceable Through Title V Permit

45. All units in a group for which representative units are source tested for NOx 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 Rules 2520, 9.4.2 and 4305, 6.3.2] Federally Enforceable Through Title V Permit

46. The number of representative units source tested for NOx 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, 9.4.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

47. A component shall be considered leaking if one or more of the conditions specified in Sections 5.1.4.1 through 5.1.4.4 of Rule 4455 exist at the facility. For this permit unit, except for pumps and compressors, a minor gas leak shall be defined for any component listed in Rule 4455 Section 3.22 Table 1 in either liquid or gas/vapor service as a reading in excess of 100 ppmv above background up to and including a reading of 10,000 ppmv above background. For pumps, compressors and other component types not specifically listed in Rule 4455 Section 3.22 Table 1 in either liquid or gas/vapor service, a minor gas leak shall be defined as a reading in excess of 500 ppmv above background up to and including a reading of 10,000 ppmv above background. Readings shall be taken as methane using a portable hydrocarbon detection instrument and shall be made in accordance with the methods specified in Section 6.4.1 of Rule 4455. [District Rules 2201 and 4455, 5.1.4] Federally Enforceable Through Title V Permit

48. The operator shall not use any component that leaks in excess of the allowable leak standards of Rule 4455, or is found to be in violation of the provisions specified in Section 5.1.3. A component identified as leaking in excess of an allowable leak standard may be used provided it has been identified with a tag for repair, has been repaired, or is awaiting re-inspection after repair, within the applicable time period specified within the rule. [District Rule Rule 4455, 5.1.1] Federally Enforceable Through Title V Permit

49. Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible and with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4455, 5.1.2] Federally Enforceable Through Title V Permit

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

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

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

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

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

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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

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

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

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

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

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

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

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

64. For any component that has incurred five repair actions for major gas leaks or major liquid leaks, or any combination of major gas leaks and major liquid leaks within a continuous 12-month period, the operator shall comply with at least one of the requirements specified in Sections 5.3.7.1, 5.3.7.2, 5.3.7.3, or 5.3.7.4 by the applicable deadlines specified in Sections 5.3.7.5 and 5.3.7.6. If the original leaking component is replaced with a new like-in-kind component before incurring five repair actions for major leaks within 12-consecutive months, the repair count shall start over for the new component. An entire compressor or pump need not be replaced provided the compressor part(s) or pump part(s) that have incurred five repair actions as described in Section 5.3.7 are brought into compliance with at least one of the requirements of Sections 5.3.7.1 through 5.3.7.6. [District Rule4455, 5.3.7] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

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

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

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

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

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

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

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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

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

75. The percent by volume liquid evaporated at 150 C shall be determined using ASTM D 86. [District Rule 4455, 6.4.3] Federally Enforceable Through Title V Permit

76. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), and 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

77. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of District Rule 4801, section 3.1 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-36-37-12 **EXPIRATION DATE:** 08/31/2006

SECTION: 24 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
LUBE OIL FINISHING PLANT WITH 16.5 MMBTU/HR NATURAL GAS-FIRED NATURAL DRAFT EXTRACT HEATER LH-1, 12.6 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-2 WITH FGR, 12.0 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-3 WITH LOW NOX BURNERS AND FGR, ABSORBER T-1, TREATING TOWER T-2, EXTRACT DRYER T-5/T-6, MP FLASH DRUM D-5, EXPANSION DRUM D-9, BLOWDOWN DRUM D-7, AND SETTLER D-1

PERMIT UNIT REQUIREMENTS

1. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4305] Federally Enforceable Through Title V Permit
2. The duration of each startup and shutdown period for the 16.5 MMBtu/hr heater LH-1 shall not exceed 6.5 hours and 2.0 hours respectively. Emission limits of Rule 4305 are waived during periods of startup and shutdown. [District Rule 4305, Section 5.5.6] Federally Enforceable Through Title V Permit
3. The duration of each startup and shutdown period for the 12.6 MMBtu/hr heater LH-2 shall not exceed 6.5 hours and 2.0 hours respectively. Emission limits of Rule 4305 are waived during periods of startup and shutdown. [District Rule 4305, Section 5.5.6] Federally Enforceable Through Title V Permit
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102] Federally Enforceable Through Title V Permit
5. Permittee shall maintain, with the permit, accurate fugitive component counts and resulting emissions calculated using API publication 4322, Table E-3 and U.S. E.P.A. publication 450/3-83-007, Table 4-1. [District Rules 4451 and 4452] Federally Enforceable Through Title V Permit
6. Heaters shall be fired exclusively on PUC quality natural gas. [District NSR Rule] Federally Enforceable Through Title V Permit
7. Absorber A-1 overhead condensibles shall be transported in a closed system to a closed oil/water separation operation to prevent emissions to the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Solvent dry tanks shall be closed and equipped with operational conservation pressure relief valves or connected to an approved vapor control system. [District NSR Rule] Federally Enforceable Through Title V Permit
9. Nash vacuum pump system vapors and Absorber A-1 overhead vapors shall be vented exclusively to activated carbon canister vapor control system. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Carbon canister vapor collection system serving Absorber A-1 and Nash vacuum system shall be maintained with a minimum of two (2) carbon canisters connected in series, except during change-out of spent canister(s). [District NSR Rule] Federally Enforceable Through Title V Permit
11. Permittee shall monitor daily for VOC concentration of gas between the carbon canisters and at the discharge of the final carbon canister. [District NSR Rule] Federally Enforceable Through Title V Permit
12. VOC concentration at exhaust outlet for carbon canister system shall not exceed 134 ppmv. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. Vapor flow rate to carbon canister system shall not exceed 480 Scf per day. [District NSR Rule] Federally Enforceable Through Title V Permit
14. Carbon canisters shall be replaced whenever effluent gas VOC concentration exceeds 134 ppmv at outlet. [District NSR Rule] Federally Enforceable Through Title V Permit
15. Carbon canister vapor control system shall be maintained leak-free (less than 10,000 ppmv @ 1 cm from source) [District NSR Rule] Federally Enforceable Through Title V Permit
16. Nash vacuum system vapors and Absorber A-1 overhead vapors shall be monitored continuously for H2S at the carbon canister system exhaust point, with alarm set at 1 ppmv - H2S. [District NSR Rule] Federally Enforceable Through Title V Permit
17. H2S emissions from first stage and second stage carbon canisters shall be tested daily, and shall be replaced as required to ensure exhaust to atmosphere does not exceed 1 ppmv-H2S. [District NSR Rule] Federally Enforceable Through Title V Permit
18. Carbon canisters shall be serviced in a manner preventing the release of VOCs into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Combined VOC emission rate from combustion equipment and fugitive sources shall not exceed 6.5 lb per day. [District NSR Rule] Federally Enforceable Through Title V Permit
20. Permittee shall comply with all applicable requirements of Rules 4453 and 4454. [District Rules 4453 and 4454] Federally Enforceable Through Title V Permit
21. No vessels, lines, or pressure relief valves shall be designed to vent to atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
22. Upon shutdown, vessels containing VOC's shall be controlled per Rule 4454. [District Rule 4454] Federally Enforceable Through Title V Permit
23. Spent, used or contaminated solvent shall not be stored in tanks or containers not connected to an approved vapor control system nor disposed of by introduction into the oily water sewer system. [District NSR Rule and Rule 4102] Federally Enforceable Through Title V Permit
24. Valves and connectors subject to the provisions of Rule 4451 shall not leak in excess of 10,000 ppmv above background when measured one (1) cm from potential source. [District Rule 4451] Federally Enforceable Through Title V Permit
25. Seals on pumps and compressors subject to the provisions of Rule 4452 shall not leak in excess of 10,000 ppmv above background when measured one cm from shaft seal. [District Rule 4452] Federally Enforceable Through Title V Permit
26. Permittee shall comply with all applicable inspection, maintenance, and recordkeeping requirements of Rules 4451 and 4452. [District Rules 4451 and 4452] Federally Enforceable Through Title V Permit
27. Emissions from 16.5 MMBtu/hr heater LH-1 shall not exceed any of the following: NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 4305 and 4351] Federally Enforceable Through Title V Permit
28. Emissions from 12.6 MMBtu/hr heater LH-2 shall not exceed any of the following: NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2520, 9.4.2, 4305 and 4351] Federally Enforceable Through Title V Permit
29. Emissions from 12.0 MMBtu/hr heater LH-3 shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.01 lb/MMBtu; NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 4305, 4351] Federally Enforceable Through Title V Permit
30. Source testing for NOx and CO emissions shall be conducted within 60 days of startup, and not less than once every 12 months, except as provided below. [District Rules 4305 and 4351] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

31. Source testing for 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

32. If permittee fails any source test for NOx and CO emissions 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

33. 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 2520, 9.4.2, 4305 and 4351] Federally Enforceable Through Title V Permit

34. 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

35. 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

36. 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

37. 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

38. Records of VOC measurements taken between the carbon canisters and at the discharge of the last carbon canister shall be maintained for a period of at least two (2) years, and made readily available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit

39. Permittee shall operate heater LH-1 as intended by manufacturer to maintain compliance with NOx and CO emissions limits. [District Rules 4305 and 4351] Federally Enforceable Through Title V Permit

40. The stack concentration of NOx (as NO2), CO, and O2 of heaters LH-1, LH-2, and LH-3 shall be measured at least on a monthly basis using District approved portable analyzers. In-stack O2 monitors are acceptable for O2 measurement. [District Rules 4305 and 4351] Federally Enforceable Through Title V Permit

41. If the NOx or CO concentrations of heaters LH-1, LH-2, and LH-3, as measured by the portable analyzer, exceed the allowable emissions rate, the permittee shall notify the District and return the NOx and CO concentrations to the allowable emissions rate as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed the allowable emissions rate after one hour, the permittee shall conduct an emissions test within 60 days, utilizing District approved test methods, to determine compliance with the applicable emission limits. [District Rules 4305 and 4351] Federally Enforceable Through Title V Permit

42. The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements on heaters LH-1, LH-2, and LH-3, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records must also include a description of any corrective action taken to maintain the emissions within an acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made available for District inspection upon request. [District Rules 4305 and 4351] Federally Enforceable Through Title V Permit

43. Permittee shall maintain records of fuel hhv and cumulative annual fuel use for a period of five years and shall make such records readily available for District inspection upon request. [District Rule 4351] Federally Enforceable Through Title V Permit

44. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(Last Amended December 19,1993). [District Rule 1081, and Kern County Rule 108.1] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

45. 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(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

46. 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, 9.5.2] Federally Enforceable Through Title V Permit

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

48. 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 firing the unit only on PUC or FERC regulated natural gas or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 2520, 9.4.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

49. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

50. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

51. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

52. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by: ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2520, 9.4.2; 4305, 6.2.1; and 4351, 6.2.1] Federally Enforceable Through Title V Permit

53. 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]. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

54. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rules 2520, 9.4.2, 4305, 5.0, 8.2 and/or 4351, 8.1] Federally Enforceable Through Title V Permit

55. Combined VOC emission rate from combustion equipment and fugitive sources shall not exceed 3.5 lb per day. [District NSR Rule] Federally Enforceable Through Title V Permit

56. No vessels, lines, or pressure relief valves shall be designed to vent to atmosphere except during breakdown conditions. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

57. The portable analyzer shall be calibrated daily when in use with a two-point calibration method (zero and span). Calibration shall be performed with certified gases. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

58. Emissions for the LH-1, LH-2, and LH-3 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, 9.4.2] Federally Enforceable Through Title V Permit

59. Annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4351, 6.3] Federally Enforceable Through Title V Permit

60. The following conditions must be met for representative unit(s) to be used to test for NOx 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 Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

61. All units in a group for which representative units are source for NOx 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 each unit of the group including all preventative and corrective maintenance work done. [District Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

62. All units in a group for which representative units are source tested for NOx 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 Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

63. The number of representative units source tested for NOx 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, 9.4.2] Federally Enforceable Through Title V Permit

64. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

65. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of SJVUAPCD Rule 4801, section 3.1 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

66. Nitrogen oxide (NOx) emissions for each heater shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2 and 2520, 9.4.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-36-42-9 **EXPIRATION DATE:** 08/31/2006

SECTION: 24 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
CRUDE UNIT AND/OR VISBREAKING UNIT INCLUDING GAS FIRED 12.6 MMBTU/HR HEATER (PERMITTED AS S-36-2), 25 MMBTU/HR NATURAL GAS FIRED VERTICAL ASPHALT HEATER H5 WITH 3 ZEECO CLSF 12 LOW NOX BURNERS, RETENTION VESSEL, AND FIVE HEATER EXCHANGERS

PERMIT UNIT REQUIREMENTS

1. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4305] Federally Enforceable Through Title V Permit
2. The duration of each startup and shutdown period for the 25.0 MMBtu/hr Visebreaker heater shall not exceed 8.0 hours and 2.0 hours respectively. Short term NOx and CO emissions limits (lb/MM Btu and ppmv @ 3% O2) shall not apply during periods of startup and shutdown. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit
3. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(Last Amended December 19,1993). [District Rule 1081, and Kern County Rule 108.1] Federally Enforceable Through Title V Permit
4. 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(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
5. 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, 9.5.2] Federally Enforceable Through Title V Permit
6. Particulate matter emissions for each heater shall not exceed 0.1 grain/dscf, 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
7. Emissions of sulfur compounds from each heater shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gast; or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 2520, 9.4.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit
8. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

9. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
10. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
11. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by: ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2520, 9.4.2; 4305, 6.2.1; 4306, 6.2.1 and 4351, 6.2.1] Federally Enforceable Through Title V Permit
12. 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). To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas not exceeding 0.5% sulfur by weight; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
13. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rules 2520, 9.4.2, 4305, 5.0, 8.2, 4306, 5.0, 8.2 and 4351, 8.1] Federally Enforceable Through Title V Permit
14. Waste gas from packed column sour water stripper shall be piped to fuel gas scrubber listed on S-36-80. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Waste liquids from fuel oil steam stripping column shall be piped to closed stripped sour water holding tank. [District Rule 2201] Federally Enforceable Through Title V Permit
16. Natural gas combusted in units shall be of PUC quality. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Fuel oil stripped water shall be piped, via closed piping, to sour water stripper only. [District NSR Rule] Federally Enforceable Through Title V Permit
18. Sour water stripper gas outlet shall discharge only into fuel gas scrubber inlet piping listed on S-36-80-0. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Sour water stripper liquid effluent shall discharge only to a closed stripped sour water holding tank via closed piping. [District NSR Rule] Federally Enforceable Through Title V Permit
20. Both heaters shall be equipped with operational recording fuel flowmeters. [District Rule Rule 1070] Federally Enforceable Through Title V Permit
21. Heat exchangers utilizing cooling water shall be operated and maintained in a manner preventing VOC emissions from the cooling tower. [District NSR Rule] Federally Enforceable Through Title V Permit
22. Process unit turn-around shall be operated in accordance with Rule 4454. [District Rule 4454] Federally Enforceable Through Title V Permit
23. Permittee shall comply with all applicable inspection, maintenance, and recordkeeping requirements of Rules 4451 and 4452. [District Rules 4451, 4452] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

24. Emissions from 25 MMBtu/hr Visbreaker heater shall not exceed any of the following: NOx (as NO2): 30 ppmv @ 3% O2, PM10: 0.004 lb/MM Btu, CO: 400 ppmv @ 3% O2 and VOC: 0.0055 lb/MMBtu. [Stipulated Abatement Order S-00-40P and District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

25. 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 and 4306] Federally Enforceable Through Title V Permit

26. 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

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 and 4306] 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 and 4306] 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 and 4306] Federally Enforceable Through Title V Permit

30. If permittee fails any compliance demonstration for NOx and 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 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

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 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

32. 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

33. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

34. 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

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

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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

37. 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 and 4306] Federally Enforceable Through Title V Permit

38. 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 and 4306] Federally Enforceable Through Title V Permit

39. Records of fuel consumed in both heaters shall be maintained for a period of five years shall be made available for District inspection upon request. [District Rule 1070 and 2520, 9.5.2] Federally Enforceable Through Title V Permit

40. Permittee shall maintain records of fuel hhv and the cumulative annual fuel combusted (scf and Btu) for a period of five years and shall make such records readily available for District inspection upon request. [District Rule 2201 and 2520, 9.5.2 and 4351] Federally Enforceable Through Title V Permit

41. 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, 9.4.2] Federally Enforceable Through Title V Permit

42. Annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4351, 6.3] Federally Enforceable Through Title V Permit

43. The following conditions must be met for representative unit(s) to be used to test for NOx 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 Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

44. All units in a group for which representative units are source for NOx 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 each unit of the group including all preventative and corrective maintenance work done. [District Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

45. All units in a group for which representative units are source tested for NOx 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 Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

46. The number of representative units source tested for NOx 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, 9.4.2] Federally Enforceable Through Title V Permit

47. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of District Rule 4801, section 3.1 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

49. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2 and 2520, 9.4.2] Federally Enforceable Through Title V Permit

50. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, and 4306] Federally Enforceable Through Title V Permit

Appendix B

SSPE1 Tabulation

Permit	Unit (MMBtu/hr)	NOx	SOx	PM10	CO	VOC
S-36-1	52.2 MMBtu/hr gas fired	16,056	1,271	3,390	131,569	4,460
	52.2 MMBtu/hr liquid fired	2,424	12,966	868	3,326	79
	27 MMBtu/hr gas fired	8,305	657	1,753	68,053	1,730
	27 MMBtu/hr liquid fired	1,254	6,707	449	1,720	12
S-36-2	12.6 MMBtu/hr gas fired	3,974	315	839	32,561	607
	12.6 MMBtu/hr liquid fired	0	0	0	0	0
S-36-3	5 MMBtu/hr	17,207	54,030	3,598	1,564	238
S-36-4	15 MMBtu/hr gas fired	4,730	368	999	38,763	723
	15 MMBtu/hr liquid fired	0	0	0	0	0
	Thermal Oxidizer	0	0	0	0	0
S-36-37	16.5 MMBtu/hr	5,203	412	1,099	42,639	1,278
	12.6 MMBtu/hr	3,974	315	839	32,561	
	12.0 MMBtu/hr	3,784	300	799	31,010	
	Carbon System	0	0	0	0	
S-36-38	Tank	0	0	0	0	139
S-36-41	31.25 MMBtu/hr gas fired	4,344	338	917	35,594	664
	31.25 MMBtu/hr liquid fired	7,961	148	3,536	45,163	367
S-36-42	25.0 MMBtu/hr	7,884	624	1,664	64,605	1,205
S-36-43	Thermal Oxidizer	25,930	88	14,016	1,927	2,891
S-36-44	Tank	0	0	0	0	0
S-36-51	47.1 MMBtu/hr	14,853	1,403	5,653	6,189	1,650
	17 MMBtu/hr	5,361	5,659	2,040	15,041	596
	7.44 MMBtu/hr	2,301	1,369	893	6,583	261
	8.0 MMBtu/hr	2,523	1,472	960	7,078	280
	8.4 MMBtu/hr	2,649	1,913	1,008	21,707	294
	Flare	2,482	38,289	986	25,660	2,701
	Thermal Oxidizer	0	18	0	0	0
	Thermal Oxidizer Start-up	0	39,420	0	0	0
	Fugitive Emissions	0	0	0	0	9,815
S-36-72	Tank	0	0	0	0	87,637
S-36-76	19.0 MMBtu/hr	5,992	2,047	2,280	49,100	1,664
S-36-99	12.6 MMBtu/hr gas fired	0	0	0	315	0
	12.6 MMBtu/hr liquid fired	4,048	11,695	855	0	46
S-36-104	Tank	0	0	0	0	1,042
S-36-105	IC Engine	511	8	0	1	0
S-36-108	Tank	0	0	0	0	1,716
	Total:	**153,750**	**181,832**	**49,441**	**662,729**	**122,095**

Appendix C

Compliance Certification

SJr SAN JOAQUIN REFINING CO., INC.
3129 Standard Street • P.O. Box 5576 • Bakersfield, CA 93388 • Phone 661 / 327-4257 • Fax 661 / 327-3236 • www.sjr.com

November 17, 2010

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

Subject: **Project Number 1000XXX**
Compliance Certification

Dear Mr. Scandura:

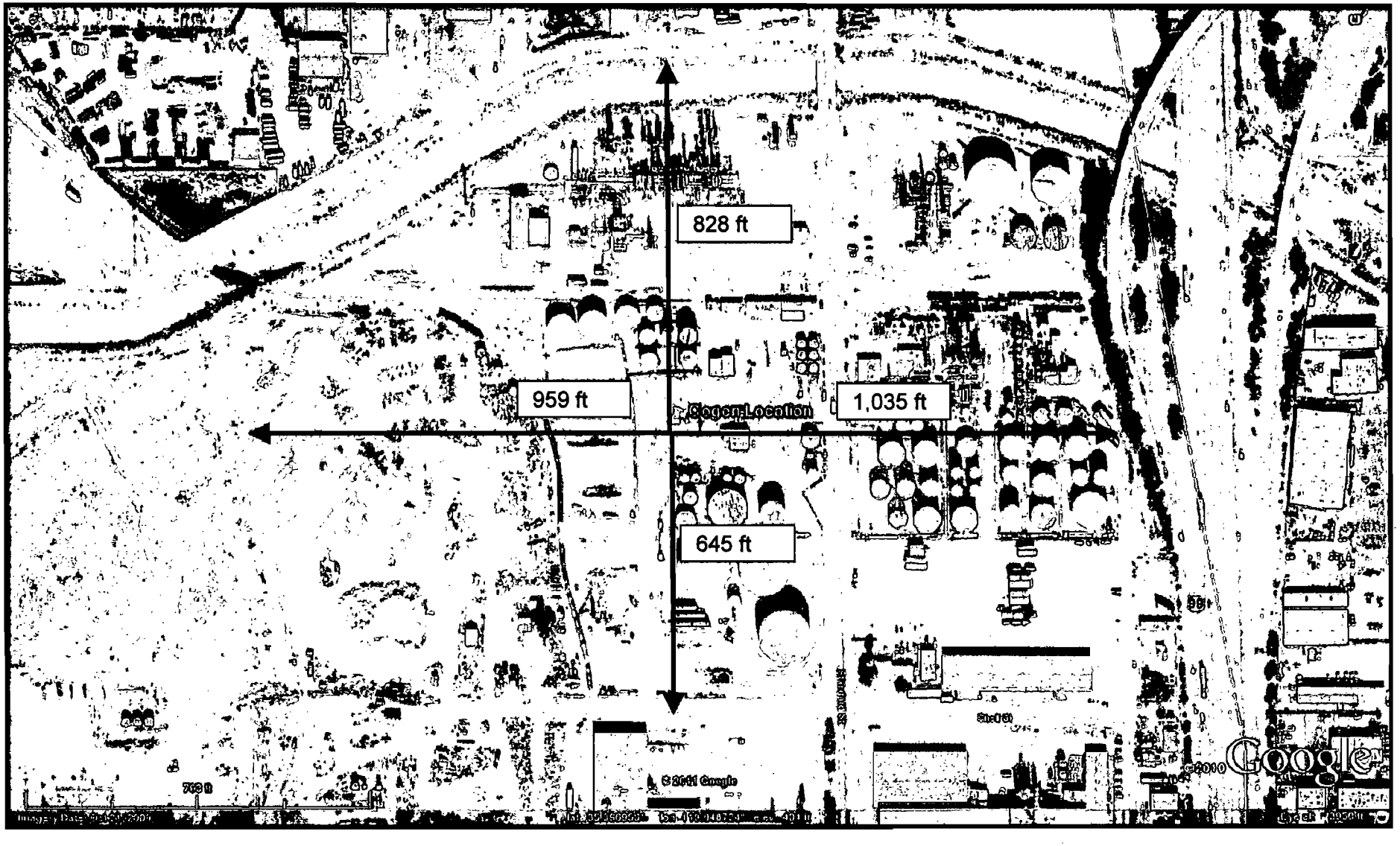
I hereby certify that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission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

Signature

ENVIRONMENTAL MANAGER
Title

Appendix D

Facility Plot Plan


828 ft
959 ft
Cogen Location
1,035 ft
645 ft
Google

Appendix E

Fuel Records

	S-36-1 UNIT #4 CRUDE HEATER	S-36-37 LH-1 HEATER	S-36-42 UNIT 4 VISBREAKER HEATER (H5)
	NAT GAS	NAT GAS	NAT GAS
	MSCF	MSCF	MSCF
Date			
Nov-08	32160.8	7533.27	2263.73
Dec-08	34433.4	8263.6	2484
Jan-09	18450.4	5031.2	2367.8
Feb-09	30155.2	6972.5	2138.9
Mar-09	33860.83	6825.1	2509.7
Apr-09	31658.5	7006.6	2507.8
May-09	33880.3	6630.2	2192.9
Jun-09	32990.8	7839.7	2143.8
Jul-09	34006.52	7147.3	2128
Aug-09	35135.9	7168	2325.1
Sep-09	33882.6	6666.7	2190.9
Oct-09	32326.5	7652.2	2228.1
Nov-09	31864.9	7246.9	2247.7
Dec-09	33420.7	9027.7	2609.6
Jan-10	32746	8009	2521
Feb-10	15021	5115	2087
Mar-10	35533	8298	2407
Apr-10	29922	7283	2167
May-10	34595	8076	2399
Jun-10	34390	8677	2423
Jul-10	35247	9442	2550
Aug-10	36174	9212	2399
Sep-10	34473	8454	2002
Oct-10	34224	7592	2157
Total (2 Years)	770552	181169	55450
Btu/scf	1000	1000	1000
Average Annual MMBtu/yr	385276	181169	55450

Appendix F

Source Test Results

SOURCE TEST REVIEW

COMPANY	SJR	REVIEWED	GL
TEST DATE	1/10/2008	DATE	3/20/2008
PERMIT#	S-36-1-12	REV.AA	
UNIT ID	HTR 4		
EQUIP DESCRIPTION	52 MMBTU		

INPUT RATED @ INPUT HP
MEASURED STACK Q

FUEL DATA	NAT. GAS	WASTE	OIL	SOLID
BTU/CF			btu/gal	btu/lb
F-FACTOR	8626			f-factor
H2S ppm				lb/hr
RATE MCFD			gal/min	ton/hr
MCF/HR	0.00	0.00	gal/hr 0	ton/day 0
INPUT IN MMBTU/HR	0.00	0.00	0.00	mmbtu/hr 0
THROTTLE	#DIV/0!			DSCFM 0

CEM DATA	RAW ppm	@3% O2	@15% O2	lb/hr	lb/MMBTU	gm/BHp-Hr	lb/MMscf	Wt. F-F lb/MMBTU	lbs/day	lb/hp-hr
O2 %	3.86	1.0505	0.3462							
NOx	22.7	23.85	7.86	0.00	0.0286	0.110	0.00	#DIV/0!	0.00	0.0002
CO	0	0.00	0.00	0.00	0.0000	0.000	0.00	#DIV/0!	0.00	0.0000
SO2		0.00	0.00	0.00	0.0000	0.000	0.00	#DIV/0!	0.00	0.0000
SO2 BY FUEL				0.00	#DIV/0!					
Q-std CALCULATED	0		WT. F-F	#DIV/0!						

FGR % CALCULATION (Temp's or O2)

Tw		BY O2	
Ta		O2w	
Ts		O2s	
%FRG =	#DIV/0!	%FRG=	100.00

DESTRUCTION %

INLET	
OUTLET	
% DESTR=	#DIV/0!

HYDROCARBONS	RAW ppm	ppm as CH4	lb/hr	lb/hr CH4
VOC METHANE		0.00	0.00	0.00
ETHANE		0.00	0.00	0.00
PROPANE		0.00	0.00	0.00
BUTANE		0.00	0.00	0.00
PENTANE		0.00	0.00	0.00
HEXANE		0.00	0.00	0.00
	0			
TOTAL VOC	0	0.00	0.00	0.00
TOTAL NonMeth/Eth.	0	0.00	0.00	0.00
VOC @ 3% & 15%		0.00	0.00	

	gm/bHP-HR	lb/MMBTU	lbs/day	lb/hp-hr
	0.000	#DIV/0!	0.00	0.0000
	0.000	0.0000	0.00	0.0000

PARTICULATE M-5	gr/dscf = #DIV/0!	lb/hr = #DIV/0!	lb/mmbtu= #DIV/0!	lbs/day= #DIV/0!	gr/dscf12%= #DIV/0!

Vm (meter vol)	%CO2	4.4	Vmstd	#DIV/0!			
Vlc (vol. of H2O)	%O2	15.5	Bws	#DIV/0!			
Y (meter callb.)	Cp	0.823	Md	29.324	Temp F =	151	
Pbar (barom. press)	dp	0.332	Ms	#DIV/0!	Temp R =	611	
Pg (stack static press)	Ts	611	Qstd	#DIV/0!	Nozz.dia	36	
H (meter diff. press.)	An		Iso	#DIV/0!	An =	7.0685775	
Tm (abs. meter temp)	sample time		Vs	#DIV/0!			
A (stack area sqft)	part. (mg)						

USE B11, B27 OR F46 FOR LB/HR PPM CALC. IN EQUATION

SO2/SO4	Vsoln	Va	Vt-Vtb	Normality	lb/dscf	lb/hr	lb/mmbtu	Vmstd	ppm
SO2 METHOD 6					#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!
SO4 m-8 nozzle/probe	5	1			#DIV/0!	#DIV/0!	#DIV/0!	ENTER ^	#DIV/0!
filter	5	1			#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!
cond.	5	1			#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!
				total SO4	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!

Other Compounds	MW	RAW ppm	@3% O2	@15% O2	lb/hr	lb/MMBTU	lb/day
O2 %	8		1.39	0.46			
CO2	44.00		0.00	0.00	0.00	0.0000	0.00
METHANOL	17		0.00	0.00	0.00	0.0000	0.00
FORMALDEHYDE	27.71		0.00	0.00	0.00	0.0000	0.00
Enter Qstd	53000						
F-Factor							
NH3	mg=		Vmstd =		ppm =	#DIV/0!	ppm 15% = #DIV/0!

MW ethanol = 46.07

San Joaquin Valley Air Pollution Control District

Source Test Results

Company: SAN JOAQUIN REFINING COMPANY **Test Date:** 06/12/2008 **Pass** ☒ **Fail** ☐

Permit#: S-36-37-12 **FacilityID:** 36 **Unit ID:** LH-1

Witnessed By: **Area Inspector:** FRANTZA

Reason For Testing:

Annual ☒ Initial ☐ CGA ☐ RATA ☐ Stationary/RATA ☐ QTR:
ReTest ☐ RepTest ☐ AMS ☐ Dist Performed ☐ Unit Dormant ☐
Postponed ☐

Test Company: AEROS ENVIRONMENTAL INC. **Project Number:** 348-5968

Next Test: 11/18/2008 **Test Company Contact:** Mr. Tim Brennan

Equipment: 12.6 MMBTU GAS FIRED HEATER

Equipment Type: Heater **Input Rate:** **Output Rate:**

Control Equipment:

Catalyst ☐ Scrubber ☐ Baghouse ☐ FGR ☐ O2 ☐
LoNOx ☐ Incin ☐ ESP ☐ H2O/Stm Inj ☐ NH3/SCR ☐
DLN ☐ PSC ☐ PCC ☐ Rich Burn ☐ Lean Burn ☐
Cyclone ☐ TEOR-Gas ☐

Fuel Data And Operational Data:

Fuel Type: Nat. Gas **F-Factor:** 8628 **BTU:** **Fuel Rate:** 310.0 MCFD
Second Fuel: **O2 % Stack:** 4.2 **Stack Flow:** **Process Rate:**

Comments:

36 MONTH TEST

Enforcement Action: ☐ **NOV#:**

Report Rec: 07/21/2008 **Reviewed By:** LAFOREG **Results Sent Date:**

Test Results:

Pollutant	Unit	Result	Limit	O2 Correction	Failed	Unit ID
CO	ppm	0.0	400.0			LH-1
NOx	ppm	23.4	30.0			LH-1

San Joaquin Valley Air Pollution Control District

Source Test Results

Company: SAN JOAQUIN REFINING COMPANY **Test Date:** 06/12/2008 **Pass** ☒ **Fail** ☐

Permit#: S-36-42-6 **FacilityID:** 36 **Unit ID:** VISBREAKER HEATER

Witnessed By: **Area Inspector:** BALDWINE

Reason For Testing:

Annual	☒	Initial	☐	CGA	☐	RATA	☐	Stationary/RATA	☐ QTR:
ReTest	☐	RepTest	☐	AMS	☐	Dist Performed	☐	Unit Dormant	☐
Postponed	☐								

Test Company: AEROS ENVIRONMENTAL INC. **Project Number:** 348-5968

Next Test: 6/5/2011 **Test Company Contact:** Mr. Tim Brennan

Equipment: 12 MMBTU GAS FIRED HEATER

Equipment Type: Heater **Input Rate:** 12.0 MMBTU/HR **Output Rate:**

Control Equipment:

Catalyst	☐	Scrubber	☐	Baghouse	☐	FGR	☐	O2	☐
LoNOx	☐	Incin	☐	ESP	☐	H2O/Stm Inj	☐	NH3/SCR	☐
DLN	☐	PSC	☐	PCC	☐	Rich Burn	☐	Lean Burn	☐
Cyclone	☐	TEOR-Gas	☐						

Fuel Data And Operational Data:

Fuel Type: Nat. Gas	**F-Factor:** 8626	**BTU:**	**Fuel Rate:**
Second Fuel:	**O2 % Stack:** 5.5	**Stack Flow:**	**Process Rate:**

Comments:

Enforcement Action: ☐ **NOV#:**

Report Rec: 07/21/2008 **Reviewed By:** LITTLEST **Results Sent Date:**

Test Results:

Pollutant	Unit	Result	Limit	O2 Correction	Failed	Unit ID
CO	ppm	83.0	400.0	3		VISBREAKER HEATER
NOx	ppm	27.8	30.0	3		VISBREAKER HEATER

Appendix G

Best Performance Standard for Cogeneration Plants

San Joaquin Valley
Unified Air Pollution Control District

Best Performance Standard (BPS) x.x.xx

Date: November 1, 2011

Class and Category	Cogeneration – Topping Cycle Plants (not including Combined Cycle units) Subcategories: 1. Natural Gas-Fired IC Engines 2. Natural Gas-Fired Turbines (not including oilfield cogeneration units) 3. Oilfield Natural Gas-Fired Turbines
Best Performance Standard	1. *Natural Gas-Fired IC Engines* Emissions Performance Design Standard of 700 lb-CO_2e per MWh of Useful Energy at ISO Conditions 2. *Natural Gas-Fired Turbines (not including oilfield cogeneration units)* Emissions Performance Design Standard of 800 lb-CO_2e per MWh of Useful Energy at ISO Conditions 3. *Oilfield Natural Gas-fired Turbines* Emissions Performance Design Standard of 800 lb-CO_2e per MWh of Useful Energy at ISO Conditions
Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions	1. *Natural Gas-Fired IC Engines:* **36.4%** 2. *Natural Gas-Fired Turbines (not including oilfield cogeneration units):* **27.3%** 3. *Oilfield Natural Gas-Fired Turbines:* **27.3%**

District Project Number	C1100393
Evaluating Engineer	James Harader
Lead Engineer	Rupi Gill
Initial Public Notice Date	April 15, 2010
Final Public Notice Date	May 10, 2010
Determination Effective Date	November 1, 2011

Appendix H

BACT Guidelines

Per » B A C T » Bact Guideline.asp?category Level1=1&category Level2=8&category Level3=1&last Update=1 » 4 :

INSTRUCTIONS: click on "Details" for Permit Specific BACT Determinations.

Back Details Page

Best Available Control Technology (BACT) Guideline 1.8.1
Last Update: 1/4/2001

Process Heater - Refinery, = or < 50.0 MMBtu/hr

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
NOx	30.0** ppmvd @ 3% 02 (0.036 lb/MMBtu) Low NOx burner system.	1. 1.7 ppmvd @ 3% 02 (0.0021 lb/MMBtu) SCR & Low NOx burner system 2. 9.2 ppmvd @ 3% 02 (0.011 lb/MMBtu) SCR system 3. 11.5 ppmvd @ 3% 02 (0.014 lb/MMBtu) Ultra Low NOx burner systems 4. 19.1 ppmvd @ 3% 02 (0.023 lb/MMBtu) Natural gas with chemical (urea)/water injection 5. 25.0 ppmvd @ 3% 02 (0.030 lb/MMBtu) Low-NOx burner system	
PM10	Natural gas and/or LPG		
SOx	Natural gas or treated refinery gas @ 0.0621 grains H2S/dscf (100 ppmv H2S)	Natural gas or treated refinery gas @ 0.0075 grains H2S/dscf (12.88 ppmv H2S)	
VOC	Natural gas and/or LPG		

** *BACT will be established on a case-by-case basis to assure the lowest achievable emission rate, taking into account unique facility characteristics.*

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

This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Details Page.

Per » B A C T » Bact Guideline.asp?category Level1=1&category Level2=8&category Level3=2&last Update=1 » 4 :

INSTRUCTIONS: click on "Details" for Permit Specific BACT Determinations.

Back Details Page

Best Available Control Technology (BACT) Guideline 1.8.2
Last Update: 1/4/2001

Process Heater - Refinery, > 50 MMBtu/hr

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
NOx	9.0 ppmvd @ 3% 02 (0.0108 lb/MMBtu) SCR	1. 1.7 ppmvd @ 3% 02 (0.0021 lb/MMBtu) SCR & Low NOx burner system. 2. 9.0 ppmvd @ 3% 02 (0.0108 lb/MMBtu) LTO system.	
SOx	Natural gas or treated refinery gas with a sulfur content of 0.0.0621 grains H2S/dscf (100 ppmv H2S).	Natural gas or treated refinery gas with a sulfur content of 0.0.0075 grains H2S/dscf (12.08 ppmv H2S).	

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

This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Details Page.

Per » B A C T » Bact Guideline.asp?category Level1=1&category Level2=8&category Level3=2&last Update=9 » 1 :

INSTRUCTIONS: click on "Details" for Permit Specific BACT Determinations.

Back Details Page

Best Available Control Technology (BACT) Guideline 1.8.2
Last Update: 9/1/2006

Refinery Heater, fired on refinery fuel gas and/or natural gas (> 50 MM Btu/hr)

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	10 ppmvd @ 3% O2		
NOx	5 ppmv @ 3% O2, (15 minute average) (SCR and low NOx burners)		
PM10	Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3-hour rolling average)		
SOx	Treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3-hour rolling average)		
VOC	Good combustion practices		

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

This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Details Page.

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.4.6*

Last Update: 9/30/2009

Gas Turbine - > 10 MW and < 50 MW, Uniform Load, with Heat Recovery

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
NOx	2 ppmvd @ 15% O2 over a 1 hour averaging period with reducing agent injection commencing at the time the catalyst reaches the temperature determined by the District to be appropriate	None	None
CO	4 ppmvd @ 15% over a 1 hour averaging period	None	None
VOC	2 ppmvd @ 15% O2 (as methane) over a 1 hour averaging period	None	None
SOx	PUC regulated natural gas or non-PUC regulated gas with no more than 0.75 gr S/100 scf	None	None
PM10	Air inlet cooler/filter, lube oil vent coelescer and either PUC regulated natural gas or non-PUC regulated gas with no more than 0.75 gr S/100 scf	None	None

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

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

Appendix I

BACT Analysis

Top Down BACT Analysis for Gas Turbine

BACT Analysis for NO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.4.6, 3rd quarter 2009, identifies achieved in practice BACT for NO_X emissions from a Gas Turbine (>10 MW and <50 MW), uniform load, with heat recovery as follows:

1) 2 ppmvd @ 15% O2 over a 1 hour averaging period with reducing agent injection commencing at the time the catalyst reaches the temperature determined by the District to be appropriate

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) 2 ppmvd @ 15% O2 over a 1 hour averaging period with reducing agent injection commencing at the time the catalyst reaches the temperature determined by the District to be appropriate

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NO_X emissions from this gas turbine is 2 ppmvd of NO_X @ 15% O2 over a 1 hour averaging period with reducing agent injection; therefore BACT for NO_X emissions is satisfied.

BACT Analysis for SO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.4.6, 3rd quarter 2009, identifies achieved in practice BACT for SO_X emissions from a Gas Turbine (>10 MW and <50 MW), uniform load, with heat recovery as follows:

1) PUC regulated natural gas or non-PUC regulated gas with no more than 1.0[9] gr-S/100 scf

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) PUC regulated natural gas or non-PUC regulated gas with no more than 1.0 gr-S/100 scf

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for SO_X emissions from this gas turbine is the fuel gas containing 1.0 gr-S/100 scf; therefore BACT for SO_X emissions is satisfied.

[9] The District recognizes that PUC gas has a sulfur content of 1.0 gr-S/100 dscf per APR-1720.

BACT Analysis for PM_{10} Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.4.6, 3rd quarter 2009, identifies achieved in practice BACT for PM_{10} emissions from a Gas Turbine (>10 MW and <50 MW), uniform load, with heat recovery as follows:

1) Air inlet cooler/filter, lube oil vent coelescer and PUC regulated or Non-PUC regulated natural gas with no more than 1.0 gr-S/100 scf[10]

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) Air inlet cooler/filter, lube oil vent coelescer and PUC regulated or Non-PUC regulated natural gas with no more than 1.0 gr-S/100 scf

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for PM_{10} emissions from this gas turbine is an air inlet cooler/filter, lube oil vent coelescer and PUC regulated or Non-PUC regulated natural gas with no more than 1.0 gr-S/100 scf; therefore BACT for PM_{10} emissions is satisfied.

[10] The District recognizes that PUC gas has a sulfur content of 1.0 gr-S/100 dscf per APR-1720

BACT Analysis for CO Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.4.6, 3rd quarter 2009, identifies achieved in practice BACT for CO emissions from a Gas Turbine (>10 MW and <50 MW), uniform load, with heat recovery as follows:

1) 4 ppmvd @ 15% O_2 over a 1-hour averaging period

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) 4 ppmvd @ 15% O_2 over a 1-hour averaging period

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for CO emissions from this gas turbine is 4 ppmvd @ 15% O_2 over a 1-hour averaging period; therefore BACT for CO emissions is satisfied.

BACT Analysis for VOC Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.4.6, 3rd quarter 2009, identifies achieved in practice BACT for VOC emissions from a Gas Turbine (>10 MW and <50 MW), uniform load, with heat recovery as follows:

1) 2 ppmvd @ 15% O_2 (as methane) over a 1-hour averaging period

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) 2 ppmvd @ 15% O_2 (as methane) over a 1-hour averaging period

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for VOC emissions from this gas turbine is 2 ppmvd @ 15% O_2 (as methane) over a 1-hour averaging period; therefore BACT for VOC emissions is satisfied.

Top Down BACT Analysis for Duct Burner

BACT Analysis for NO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.8.2, 3rd quarter 2006, identifies achieved in practice BACT for NO_X emissions from a Refinery Heater (>50 MMBtu/hr), fired on refinery fuel gas and/or natural gas as follows:

1) 5 ppmvd @ 3% O2 over a 15 minute averaging period with SCR and low NOx burners

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) 5 ppmvd @ 3% O2 over a 15 minute averaging period with SCR and low NOx burners

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NO_X emissions from this duct burner is 5 ppmvd @ 3% O2 (5.4 ppm-NO_X @ 3% O_2 = 0.007 lb-NO_X/MMBtu = 2 ppm-NO_X @ 15% O_2, which is the proposed limit at 15% O_2) over a 1 hour averaging period with reducing agent injection; therefore BACT for NO_X emissions is satisfied.

BACT Analysis for SO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.8.2, 3rd quarter 2006, identifies achieved in practice BACT for SO_X emissions from a Refinery Heater (>50 MMBtu/hr), fired on refinery fuel gas and/or natural gas as treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3-hour rolling average).

Recently adopted District Rule 4320 requires reduced SO_X levels (5 gr-S/100 dscf per Section 5.4.1.2, ~84 ppmv-S) in fuel fired equipment in order to reduce PM_{10} emissions (SO_X is a precursor to PM_{10} formation in the atmosphere). As a result, Rule 4320 is more stringent than this guideline, which requires 100 ppmv. SJR has proposed to operate the duct burner with a daily blended fuel sulfur limit of 1.4 gr-S/100 dscf and an annual limit of 1.3 gr-S/100 dscf, which is more stringent than complying with Section 5.4.1.2 of Rule 4320. The ATC resulting from this project will restrict fuel gas sulfur to less than 5 gr-S/100 scf with limits on refinery gas to ensure fuel is blended properly, thereby satisfying the BACT requirement of no more than 100 ppmv total reduced sulfur in the fuel gas.

Therefore, achieved in practice BACT for SO_X will be the following:

1) Treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) Treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for SO_X emissions from this duct burner is the fuel gas being treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf; therefore BACT for SO_X emissions is satisfied.

BACT Analysis for PM_{10} Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.8.2, 3rd quarter 2006, identifies achieved in practice BACT for PM_{10} emissions from a Refinery Heater (>50 MMBtu/hr), fired on refinery fuel gas and/or natural gas as treated refinery fuel gas and/or natural gas with no more than 100 ppmv total reduced sulfur (3-hour rolling average).

Recently adopted District Rule 4320 requires reduced SO_X levels (5 gr-S/100 dscf per Section 5.4.1.2, ~84 ppmv-S) in fuel fired equipment in order to reduce PM_{10} emissions (SO_X is a precursor to PM_{10} formation in the atmosphere). As a result, Rule 4320 is more stringent than this guideline, which requires 100 ppmv. SJR has proposed to operate the duct burner with a daily blended fuel sulfur limit of 1.4 gr-S/100 dscf and an annual limit of 1.3 gr-S/100 dscf, which is more stringent than complying with Section 5.4.1.2 of Rule 4320. The ATC resulting from this project will restrict fuel gas sulfur to less than 5 gr-S/100 scf with limits on refinery gas to ensure fuel is blended properly, thereby satisfying the BACT requirement of no more than 100 ppmv total reduced sulfur in the fuel gas.

Therefore, achieved in practice BACT for PM_{10} will be the following:

1) Treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) Treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for PM_{10} emissions from this duct burner is the fuel gas being treated refinery fuel gas and/or natural gas with no more than 5 gr-S/100dscf; therefore BACT for PM_{10} emissions is satisfied.

BACT Analysis for CO Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.8.2, 3rd quarter 2006, identifies achieved in practice BACT for CO emissions from a Refinery Heater (>50 MMBtu/hr), fired on refinery fuel gas and/or natural gas as follows:

1) 10 ppmvd @ 3% O_2

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) 10 ppmvd @ 3% O_2

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for CO emissions from this duct burner is 10 ppmvd @ 3% O_2; therefore BACT for CO emissions is satisfied.

BACT Analysis for VOC Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.8.2, 3rd quarter 2006, identifies achieved in practice BACT for VOC emissions from a Refinery Heater (>50 MMBtu/hr), fired on refinery fuel gas and/or natural gas as follows:

1) Good combustion practices

No technologically feasible or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

1) Good combustion practices

d. Step 4 - Cost Effectiveness Analysis

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for VOC emissions from this duct burner is good combustion practices; as this cogeneration system meets the District's Best Performance Standards, efficient combustion is expected and BACT for VOC emissions is satisfied.

Appendix J

HRA/AAQA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Kris Rickards – Permit Services
From:	Cheryl Lawler – Technical Services
Date:	April 18, 2011
Facility Name:	San Joaquin Refining
Location:	Corner Standard & Shell Streets, Bakersfield
Application #(s):	S-36-115-0
Project #:	S-1104824

A. RMR SUMMARY

RMR Summary			
Categories	**Natural Gas Cogen Turbine (Unit 115-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	1.08	1.08	>1
Acute Hazard Index	0.01	0.01	0.05
Chronic Hazard Index	0.00	0.00	0.02
Maximum Individual Cancer Risk	**1.94E-08**	1.94E-08	4.31E-06
T-BACT Required?	**No**		
Special Permit Conditions?	**Yes**		

Proposed Permit Conditions

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

Unit 115-0

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

B. RMR REPORT

I. Project Description

Technical Services received a request on April 8, 2011, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a natural gas cogen turbine.

II. Analysis

For the Risk Management Review, toxic emissions from the turbine were calculated using Ventura County emission factors for natural gas turbines. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score was greater than 1.0 (see RMR Summary Table); therefore, a refined Health Risk Assessment was required and performed for the project. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Analysis Parameters			
Source Type	Point	**Closest Receptor (m)**	201.17
Stack Height (m)	17.07	**Closest Receptor Type**	Business
Inside Diameter (m)	2.21	**Project Location Type**	Rural
Gas Exit Temperature (K)	452	**Stack Gas Velocity (m/s)**	9.85

Technical Services also performed modeling for criteria pollutants CO, SOx, and PM_{10}; as well as the RMR. Emission rates used for criteria pollutant modeling were 47.85 lb/hr CO, 1.10 lb/hr SOx, and 1.81 lb/hr PM_{10}. The results from the Criteria Pollutant Modeling are as follows:

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

Turbine	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	X	X	X	X	X
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[1]	Pass[1]

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

III. Conclusions

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

The cancer risk associated with the operation of the turbine is **1.94E-08**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the engines are approved **without** Toxic Best Available Control Technology (T-BACT).

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

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

Appendix K

Approved Alternate Monitoring

San Joaquin Valley Unified Air Pollution Control District

Alternate Monitoring Proposal for Rule 4703
Monitoring of NOx Emissions Using a Portable Analyzer and Continuous Monitoring of the Selective Catalytic Reduction System Ammonia Injection Rate

Approved By: _____ Date: _____
David Warner
Director of Permit Services

Facility Name: Pixley Cogeneration Partners
Mailing Address: PO Box 745
Forest Hill, CA 95631

Contact Person: Brad Reeves
Phone: (530) 906-4337

Engineer: James Harader
Date: April 26,2006

Application Numbers: S-6534-3-0 and S-6534-4-0
Project Number: S-1055631

Proposal

Pixley Cogeneration is proposing the installation of two 5.86 MW gas turbines, each equipped with a selective catalytic reduction (SCR) system to control NOx emissions for compliance with District Rule 4703 and Best Available Control Technology requirements. The SCR system will utilize ammonia as the reducing agent.

Turbines, rated 10 MW or greater, are typically equipped with Continuous Emissions Monitoring Systems (CEMS) for monitoring NOx and O_2. Rule 4703 §6.2.1 requires the owner or operator of a gas turbine subject to this rule, rated less than 10 MW, and equipped with a NOx control device to install, operate, and maintain continuous emissions monitoring equipment for NOx and oxygen, or install and maintain APCO-approved alternate monitoring consisting of one or more of the following:

1. Periodic NOx emission concentrations,
2. Turbine exhaust oxygen concentration,
3. Air-to-fuel ratio,
4. Flow rate of reducing agents added to turbine exhaust,
5. catalyst inlet and exhaust temperature,
6. catalyst inlet and exhaust oxygen concentration,
7. or other operational characteristics

To comply with District Rule 4703 requirements, the applicant is proposing to monitor the following parameters:

1. The applicant will take periodic NOx emission concentration measurements with a portable analyzer.

2. To ensure that NOx emissions concentrations are not being exceeded between periodic NOx emission concentration measurements, the applicant is proposing to determine a correlation between the Selective Catalytic Reduction system's ammonia injection rate and NOx emissions. This parameter will be continuously monitored.

In addition to the above monitoring requirements, the facility will monitor ammonia slip (NH_3) emissions using either a continuous ammonia emissions monitoring device or a District Approved alternative. This proposed monitoring scheme is currently used at another facility, California Dairies (See permit S-1346-24), for a turbine that is powering a 4.6 MW generator.

A. Control Technology

SCR utilizes a catalytic bed and a reducing agent, usually ammonia, to convert NOx to nitrogen and oxygen. Ammonia is injected into the exhaust system upstream of a catalyst and creates a reducing atmosphere. The exhaust stream then passes through the catalyst, which promotes the reduction reaction. The reduction reaction results in nitrogen oxide converted to nitrogen and oxygen.

B. Monitoring Parameters

NOx, CO, and O_2 will be directly measured utilizing a District-approved portable analyzer. The NOx and CO readings in conjuction with the O_2 readings will enable the facility to correct the actual NOx and CO concentrations to concentrations at 15% O_2, which is what is required to show compliance. The ammonia injection rate will be monitored during the portable analyzer measurements, to determine if there has been any degradation of the SCR catalyst.

The ammonia injection rate will be measured directly. This reading will enable the facility to demonstrate that the permitted NOx emissions are not being exceeded between periodic NOx monitoring and source testing measurements.

C. Frequency

NOx, CO, and O2 readings with a portable analyzer will initially be required on a weekly basis. If compliance with the NOx and CO emissions limits is demonstrated for eight consecutive weeks, the monitoring frequency will be reduced to monthly measurements. If deviations are observed it two consecutive months, monitoring will revert back to weekly until 8 consecutive weekly measurements demonstrate compliance. The ammonia injection rate will be monitored continuously to show continuous compliance with the NOx emissions rate.

D. Reporting

The permittee must notify the District within 1 hour after discovery that the ammonia injection rate is less than the ammonia injection rate that demonstrates compliance with the emissions limits or if the emissions measure by the portable analyzer exceed the permitted emission limits.

E. Testing

Source testing for NOx and CO occur on an annual basis (as required by District Rule 4703). If the ammonia injection rate drops below the minimum ammonia injection rate and is not returned to a rate at or above the minumum ammonia injection rate within 8 hours, a source test shall be conducted within 60 days to demonstrate compliance with the applicable emission limits. If portable analyzer readings indicated that the actual emissions exceed the permitted emissions limits and this condition is not corrected within 8 hours, a source test must be conducted within 60 days to demonstrate compliance with the applicable emission limits.

F. Proposed Permit Condtions

- During initial performance testing, the ammonia injection rate shall be monitored concurrently with each testing run to establish acceptable values and ranges that provide a reasonable assurance of ongoing compliance with the emissions limitations stated in this permit (with or without the duct burner operating). The minimum ammonia injection rate(s) demonstrated during the initial performance test to result in compliance with the NOx emission limits shall by imposed as a condition in the Permit to Operate. [District Rule 2201 and 40 CFR 60.334(f)(3)]

- If the ammonia injection rate is less than the minimum ammonia injection rate demonstrated during the initial compliance test, the permittee shall return the ammonia injection rate above the minimum ammonia injection rate established during compliance testing as soon as possible, but no longer than 8 hours after detection. If the ammonia injection rate is not returned above the minimum ammonia injection rate established during compliance testing within 8 hours, the permittee shall notify the District within the following 1 hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced ammonia injection rate. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must 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 Rule 2201]

- The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 weekly. If compliance with the NOx and CO emissions is demonstrated for eight (8) consecutive weeks, then the monitoring frequency will be reduced to monthly. If deviations are observed in two consecutive months, monitoring shall revert to weekly until 8 consecutive weeks show no deviations. 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 one (1) day of restarting the unit unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the week if on a weekly monitoring schedule. [District Rule 2201]

- If the NOx and/or CO concentrations, as measured by the permittee with a portable analyzer, exceed the permitted emission limits, the permittee shall notify the District and return the NOx and CO concentrations to the permitted emission limits as soon as possible but no longer than eight (8) hours after detection. If the permittee's portable analyzer readings continue to exceed the permitted emissions limits after eight (8) hours, the permittee shall notify the District within the following one (1) hour, and conduct a certified source test within 60 days to demonstrate compliance with the permitted emissions limits. In lieu of conducting a source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must 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 Rule 2201]

- Compliance with ammonia emission limit shall be demonstrated utilizing one of the following procedures: 1) The permittee may utilize a continuous in-stack ammonia monitor to verify compliance with the ammonia emissions limit. 2) The permittee may utilize a District-approved calculation method using measured surrogate parameters to determine the daily ammonia emissions in ppmvd @ 15% O2. The permittee shall submit a detailed calculation protocol or monitoring plan for District Approval at least 60 days prior to the commencement of operation. [District Rules 2201 and 4102]

Appendix L

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-36-1-15 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: SAN JOAQUIN REFINING COMPANY
MAILING ADDRESS: PO BOX 5576
BAKERSFIELD, CA 93388

LOCATION: STANDARD AND SHELL ST
BAKERSFIELD, CA 93308

SECTION: NE24 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
MODIFICATION OF 79.2 MMBTU/HR ATMOSPHERIC/VACUUM CRUDE UNIT #4 WITH PREFLASH COLUMN, FRACTIONATOR, VACUUM DISTILLATION COLUMN WITH MECHANICAL VACUUM PRODUCING SYSTEM, 27 MMBTU/HR GAS/OIL/WASTE GAS FIRED NATURAL DRAFT VACUUM HEATER #VH-4 WITH THREE ZEECO CLSF 11 LOW NOX BURNERS AND 52.2 MMBTU/HR GAS/OIL FIRED NATURAL DRAFT HEATER #4 WITH ZEECO MODEL CLSF LOW NOX BURNERS: REMOVE OIL FIRING CAPABILITY AND LIMIT CRUDE HEATER #4 FIRING ABILITY TO PERIODS WHEN S-36-115 IS NOT OPERATING

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. This Authority to Construct (ATC) shall be implemented concurrently with ATCs S-36-37-14, '-42-10, and '-115-0. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Heater #4 (52.2 MMBtu/hr) shall not operate during periods when S-36-115 is operating. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4305] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-36-1-15 : May 3 2012 11:58AM – RICKARDK : Joint Inspection Required with RICKARDK

6. The duration of each startup and shutdown period for the 52.2 MMBtu/hr crude heater #4 shall not exceed 8.0 hours and 2.0 hours respectively. Short term NOx and CO emissions limits (lb/MM Btu or ppmv @ 3% O2) shall not apply during periods of startup and and shutdown. [District Rules 2201, 4305, 4360 and 4351] Federally Enforceable Through Title V Permit

7. The duration of each startup and shutdown period for the 27.0 MMBtu/hr vacuum heater VH-4 shall not exceed 9.0 hours and 2.0 hours respectively. Short term NOx and CO emissions limits (lb/MM Btu or ppmv @ 3% O2) shall not apply during periods of startup and and shutdown. [District Rules 2201, 4305, 4360 and 4351] Federally Enforceable Through Title V Permit

8. All equipment shall be constructed, maintained, and operated according to the specifications and plans contained in the permit application except as otherwise specified herein. [District NSR Rule] Federally Enforceable Through Title V Permit

9. Natural gas combusted in crude heater #4 and the vacuum heater shall be of PUC quality. [District Rule 2201] Federally Enforceable Through Title V Permit

10. The burning of fuel oil in the vacuum heater shall only be performed during periods of involuntary natural gas curtailments and for equipment testing. [District Rules 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

11. The burning of fuel oil in each heater is limited to 168 cumulative hours in a calendar year plus 48 hour per calendar year for equipment testing of operation during natural gas curtailments. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

12. Vacuum system exhaust gas emissions shall be controlled by incineration in the 27 MMBtu/hr vacuum heater (VH-4). [District Rule 4453 and Kern County Rule 414.2] Federally Enforceable Through Title V Permit

13. Heat exchangers utilizing cooling water shall be operated and maintained as to prevent VOC emissions from cooling towers. [District NSR Rule] Federally Enforceable Through Title V Permit

14. Gas firing emissions from 52.2 MMBtu/hr crude heater #4 shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.01 lb/MMBtu; NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

15. Gas firing emissions from 27 MMBtu/hr vacuum heater shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.0075 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

16. Oil firing emissions from 27 MMBtu/hr vacuum heater shall not exceed any of the following: PM10: 11.56 lb/1000 gal; SOx (as SO2): 172.7 lb/1000 gal; NOx (as NO2): 0.215 lb/MM Btu; VOC: 1.12 lb/1000 gal; or CO : 400 ppmv @ 3% O2. [District Rules 2201, 2520, 9.4.2, 4305 and 4306] Federally Enforceable Through Title V Permit

17. NOx emissions when gas firing 27 MMBtu/hr vacuum heater shall not exceed 30 ppmv @ 3% O2. [Stipulated Abatement Order S-00-40P, District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

18. Source testing for NOx and CO emissions shall be conducted not less than once every 12 months, except as provided below. [District Rules 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

19. Source testing for 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 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

20. If permittee fails any compliance demonstration for NOx and/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 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

21. 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 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

22. 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

23. 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

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

25. The 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, 4306 and 4351] Federally Enforceable Through Title V Permit

26. The stack concentration of NOx (as NO2), CO, and O2 shall be measured at least on a monthly basis using District approved portable analyzers. In-stack O2 monitors are acceptable for O2 measurement. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

27. If the NOx and/or CO concentrations, as measured by the portable analyzer, exceed the allowable emissions rate, the permittee shall notify the District and return the NOx and CO concentrations to the allowable emissions rate as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed the allowable emissions rate after one hour, the permittee shall conduct an emissions test within 60 days, utilizing District approved test methods, to determine compliance with the applicable emissions limits. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

28. 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 must also include a description of any corrective action taken to maintain the emissions within an acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made available for District inspection upon request. [District Rules 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

29. Permittee shall maintain records of fuel hhv and cumulative annual fuel use for a period of five years and shall make such records readily available for District inspection upon request. [District Rule 4351] Federally Enforceable Through Title V Permit

30. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(Last Amended December 19,1993). [District Rule 1081, and Kern County Rules 108.1] Federally Enforceable Through Title V Permit

31. 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(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

32. {520} 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, 9.5.2] Federally Enforceable Through Title V Permit

33. {588} Particulate matter emissions shall not exceed 0.1 grain/dscf, 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit

34. Source testing shall be performed using EPA Method 5 while firing on residual oil (including crude or topped crude) to demonstrate compliance with PM emission limits. Source testing shall be performed within 90 days of firing on residual oil unless such testing has been performed within the 12 month period prior to firing on said oil and the test results showed compliance with PM emission limits of this permit. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

35. Emissions of sulfur compounds from each heater shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or on diesel fuel not exceeding 0.5% sulfur by weight; or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 2520, 9.4.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

36. {524} When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

37. {525} When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

38. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

39. If the unit is fired on noncertified liquid fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the liquid fuel being fired in the unit shall be determined using ASTM D 2880. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

40. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by: ASTM D 240 or D 2382 for liquid hydrocarbon fuels; ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2520, 9.4.2; 4305, 6.2.1; 4306, 6.2.1 and 4351, 6.2.1] Federally Enforceable Through Title V Permit

41. 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). To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas or diesel fuel not exceeding 0.5% sulfur by weight; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels or 3.0% by weight for residual oil (including crude or topped crude); or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

42. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rule 2520, 9.4.2, 4305, 5.0, 8.2, 4306, 5.0, 8.2 and 4351, 8.1] Federally Enforceable Through Title V Permit

43. The portable analyzer shall be calibrated daily when in use with a two-point calibration method (zero and span). Calibration shall be performed with certified gases. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

44. 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, 9.4.2] Federally Enforceable Through Title V Permit

45. Annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4351, 6.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

46. The following conditions must be met for representative unit(s) to be used to test for NOx 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 Rules 2520, 9.4.2 and 4305, 6.3.2] Federally Enforceable Through Title V Permit

47. All units in a group for which representative units are source for NOx 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 each unit of the group including all preventative and corrective maintenance work done. [District Rule 2520, 9.4.2 and 4305, 6.3.2] Federally Enforceable Through Title V Permit

48. All units in a group for which representative units are source tested for NOx 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 Rules 2520, 9.4.2 and 4305, 6.3.2] Federally Enforceable Through Title V Permit

49. The number of representative units source tested for NOx 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, 9.4.2] Federally Enforceable Through Title V Permit

50. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), and 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

51. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of District Rule 4801, section 3.1 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-36-37-14 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: SAN JOAQUIN REFINING COMPANY
MAILING ADDRESS: PO BOX 5576
BAKERSFIELD, CA 93388

LOCATION: STANDARD AND SHELL ST
BAKERSFIELD, CA 93308

SECTION: 24 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
MODIFICATION OF LUBE OIL FINISHING PLANT WITH 16.5 MMBTU/HR NATURAL GAS-FIRED NATURAL DRAFT EXTRACT HEATER LH-1, 12.6 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-2 WITH FGR, 12.0 MMBTU/HR NATURAL GAS-FIRED FORCED DRAFT HOT OIL HEATER LH-3 WITH LOW NOX BURNERS AND FGR, ABSORBER T-1, TREATING TOWER T-2, EXTRACT DRYER T-5/T-6, MP FLASH DRUM D-5, EXPANSION DRUM D-9, BLOWDOWN DRUM D-7, AND SETTLER D-1: LIMIT LH-1 HEATER FIRING ABILITY TO PERIODS WHEN S-36-115 IS NOT OPERATING

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. This Authority to Construct (ATC) shall be implemented concurrently with ATCs S-36-1-15, '-42-10, and '-115-0. [District NSR Rule] Federally Enforceable Through Title V Permit
4. LH1 heater (16.5 MMBtu/hr) shall not operate during periods when S-36-115 is operating. [District NSR Rule] Federally Enforceable Through Title V Permit
5. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4305 and 4306] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-36-37-14 : May 3 2012 11:58AM -- RICKARDK : Joint Inspection Required with RICKARDK

6. The duration of each startup and shutdown period for the 16.5 MMBtu/hr heater LH-1 shall not exceed 6.5 hours and 2.0 hours respectively. [District Rule 4305 and 4306] Federally Enforceable Through Title V Permit
7. The duration of each startup and shutdown period for the 12.6 MMBtu/hr heater LH-2 shall not exceed 6.5 hours and 2.0 hours respectively. [District Rule 4305 and 4306] Federally Enforceable Through Title V Permit
8. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102] Federally Enforceable Through Title V Permit
9. Permittee shall maintain, with the permit, accurate fugitive component counts and resulting emissions calculated using API publication 4322, Table E-3 and U.S. E.P.A. publication 450/3-83-007, Table 4-1. [District Rules 4451 and 4452] Federally Enforceable Through Title V Permit
10. Heaters shall be fired exclusively on PUC quality natural gas. [District NSR Rule] Federally Enforceable Through Title V Permit
11. Absorber A-1 overhead condensibles shall be transported in a closed system to a closed oil/water separation operation to prevent emissions to the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
12. Solvent dry tanks shall be closed and equipped with operational conservation pressure relief valves or connected to an approved vapor control system. [District NSR Rule] Federally Enforceable Through Title V Permit
13. Nash vacuum pump system vapors and Absorber A-1 overhead vapors shall be vented exclusively to activated carbon canister vapor control system. [District NSR Rule] Federally Enforceable Through Title V Permit
14. Carbon canister vapor collection system serving Absorber A-1 and Nash vacuum system shall be maintained with a minimum of two (2) carbon canisters connected in series, except during change-out of spent canister(s). [District NSR Rule] Federally Enforceable Through Title V Permit
15. Permittee shall monitor daily for VOC concentration of gas between the carbon canisters and at the discharge of the final carbon canister. [District NSR Rule] Federally Enforceable Through Title V Permit
16. VOC concentration at exhaust outlet for carbon canister system shall not exceed 134 ppmv. [District NSR Rule] Federally Enforceable Through Title V Permit
17. Vapor flow rate to carbon canister system shall not exceed 480 Scf per day. [District NSR Rule] Federally Enforceable Through Title V Permit
18. Carbon canisters shall be replaced whenever effluent gas VOC concentration exceeds 134 ppmv at outlet. [District NSR Rule] Federally Enforceable Through Title V Permit
19. Carbon canister vapor control system shall be maintained leak-free (less than 10,000 ppmv @ 1 cm from source) [District NSR Rule] Federally Enforceable Through Title V Permit
20. Nash vacuum system vapors and Absorber A-1 overhead vapors shall be monitored continuously for H2S at the carbon canister system exhaust point, with alarm set at 1 ppmv - H2S. [District NSR Rule] Federally Enforceable Through Title V Permit
21. H2S emissions from first stage and second stage carbon canisters shall be tested daily, and shall be replaced as required to ensure exhaust to atmosphere does not exceed 1 ppmv-H2S. [District NSR Rule] Federally Enforceable Through Title V Permit
22. Carbon canisters shall be serviced in a manner preventing the release of VOCs into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
23. Combined VOC emission rate from combustion equipment and fugitive sources shall not exceed 3.5 lb per day. [District NSR Rule] Federally Enforceable Through Title V Permit
24. Permittee shall comply with all applicable requirements of Rules 4453 and 4454. [District Rules 4453 and 4454] Federally Enforceable Through Title V Permit
25. No vessels, lines, or pressure relief valves shall be designed to vent to atmosphere except during breakdown conditions. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

26. Upon shutdown, vessels containing VOC's shall be controlled per Rule 4454. [District Rule 4454] Federally Enforceable Through Title V Permit

27. Spent, used or contaminated solvent shall not be stored in tanks or containers not connected to an approved vapor control system nor disposed of by introduction into the oily water sewer system. [District NSR Rule and Rule 4102] Federally Enforceable Through Title V Permit

28. Valves and connectors subject to the provisions of Rule 4451 shall not leak in excess of 10,000 ppmv above background when measured one (1) cm from potential source. [District Rule 4451] Federally Enforceable Through Title V Permit

29. Seals on pumps and compressors subject to the provisions of Rule 4452 shall not leak in excess of 10,000 ppmv above background when measured one cm from shaft seal. [District Rule 4452] Federally Enforceable Through Title V Permit

30. Permittee shall comply with all applicable inspection, maintenance, and recordkeeping requirements of Rules 4451 and 4452. [District Rules 4451 and 4452] Federally Enforceable Through Title V Permit

31. Except during periods of start-up and shutdown, emissions from 16.5 MMBtu/hr heater LH-1 shall not exceed any of the following: NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

32. Except during periods of start-up and shutdown, emissions from 12.6 MMBtu/hr heater LH-2 shall not exceed any of the following: NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 2520, 9.4.2, 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

33. Except during periods of start-up and shutdown, emissions from 12.0 MMBtu/hr heater LH-3 shall not exceed any of the following: PM10: 0.004 lb/MMBtu; VOC: 0.01 lb/MMBtu; NOx (as NO2) - 30 ppmv @ 3% O2 or 0.036 lb/MMBtu; or CO - 400 ppmv @ 3% O2. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

34. Source testing for NOx and CO emissions shall be conducted within 60 days of startup, and not less than once every 12 months, except as provided below. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

35. Source testing for 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, 4306, and 4351] Federally Enforceable Through Title V Permit

36. If permittee fails any source test for NOx and CO emissions 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, 4306, and 4351] Federally Enforceable Through Title V Permit

37. 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 2520, 9.4.2, 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

38. 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. 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. 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. The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

42. 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, 4306, and 4351] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

43. Records of VOC measurements taken between the carbon canisters and at the discharge of the last carbon canister shall be maintained for a period of at least two (2) years, and made readily available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit

44. Permittee shall operate heater LH-1 as intended by manufacturer to maintain compliance with NOx and CO emissions limits. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

45. The stack concentration of NOx (as NO2), CO, and O2 of heaters LH-1, LH-2, and LH-3 shall be measured at least on a monthly basis using District approved portable analyzers. In-stack O2 monitors are acceptable for O2 measurement. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

46. If the NOx or CO concentrations of heaters LH-1, LH-2, and LH-3, as measured by the portable analyzer, exceed the allowable emissions rate, the permittee shall notify the District and return the NOx and CO concentrations to the allowable emissions rate as soon as possible but no longer than one (1) hour after detection. If the portable analyzer readings continue to exceed the allowable emissions rate after one hour, the permittee shall conduct an emissions test within 60 days, utilizing District approved test methods, to determine compliance with the applicable emission limits. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

47. 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 4351] Federally Enforceable Through Title V Permit

48. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

49. The permittee shall maintain records of the date and time of NOx, CO, and O2 measurements on heaters LH-1, LH-2, and LH-3, the measured NO2 and CO concentrations corrected to 3% O2, and the O2 concentration. The records must also include a description of any corrective action taken to maintain the emissions within an acceptable range. These records shall be retained at the facility for a period of no less than five years and shall be made available for District inspection upon request. [District Rules 4305, 4306, and 4351] Federally Enforceable Through Title V Permit

50. Permittee shall maintain records of fuel hhv and cumulative annual fuel use for a period of five years and shall make such records readily available for District inspection upon request. [District Rule 4351] Federally Enforceable Through Title V Permit

51. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(Last Amended December 19,1993). [District Rule 1081, and Kern County Rule 108.1] Federally Enforceable Through Title V Permit

52. 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(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

53. {520} 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, 9.5.2] Federally Enforceable Through Title V Permit

54. {588} Particulate matter emissions shall not exceed 0.1 grain/dscf, 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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 firing the unit only on PUC or FERC regulated natural gas or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 2520, 9.4.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

56. {524} When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

57. {525} When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

58. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

59. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by: ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2520, 9.4.2; 4305, 6.2.1; 4306; and 4351, 6.2.1] Federally Enforceable Through Title V Permit

60. 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]. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

61. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rules 2520, 9.4.2, 4305, 4306, and/or 4351, 8.1] Federally Enforceable Through Title V Permit

62. The portable analyzer shall be calibrated daily when in use with a two-point calibration method (zero and span). Calibration shall be performed with certified gases. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

63. Emissions for the LH-1, LH-2, and LH-3 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 Rules 2520, 9.4.2, 4305, and 4306] Federally Enforceable Through Title V Permit

64. Annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, 4306, and 4351, 6.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

65. The following conditions must be met for representative unit(s) to be used to test for NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4306] Federally Enforceable Through Title V Permit

66. All units in a group for which representative units are source for NOx 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 each unit of the group including all preventative and corrective maintenance work done. [District Rules 2520, 9.4.2, 4305, 6.3.2, and 4306] Federally Enforceable Through Title V Permit

67. All units in a group for which representative units are source tested for NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4306] Federally Enforceable Through Title V Permit

68. The number of representative units source tested for NOx 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, 9.4.2] Federally Enforceable Through Title V Permit

69. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

70. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of SJVUAPCD Rule 4801, section 3.1 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

71. Nitrogen oxide (NOx) emissions for each heater shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2 and 2520, 9.4.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-36-42-10 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: SAN JOAQUIN REFINING COMPANY
MAILING ADDRESS: PO BOX 5576
BAKERSFIELD, CA 93388

LOCATION: STANDARD AND SHELL ST
BAKERSFIELD, CA 93308

SECTION: 24 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
MODIFICATION OF CRUDE UNIT AND/OR VISBREAKING UNIT INCLUDING GAS FIRED 12.6 MMBTU/HR HEATER (PERMITTED AS S-36-2), 25 MMBTU/HR NATURAL GAS FIRED VERTICAL ASPHALT HEATER H5 WITH 3 ZEECO CLSF 12 LOW NOX BURNERS, RETENTION VESSEL, AND FIVE HEATER EXCHANGERS: LIMIT ASPHALT HEATER H5 FIRING ABILITY TO PERIODS WHEN S-36-115 IS NOT OPERATING

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. This Authority to Construct (ATC) shall be implemented concurrently with ATC S-36-1-15, '-37-14, and '-115-0. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Asphalt heater H5 (25 MMBtu/hr) shall not operate during periods when S-36-115 is operating. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4305] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-36-42-10 : May 3 2012 11:58AM – RICKARDK : Joint Inspection Required with RICKARDK

6. The duration of each startup and shutdown period for the 25.0 MMBtu/hr Visebreaker heater shall not exceed 8.0 hours and 2.0 hours respectively. Short term NOx and CO emissions limits (lb/MM Btu and ppmv @ 3% O2) shall not apply during periods of startup and shutdown. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

7. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(Last Amended December 19,1993). [District Rule 1081, and Kern County Rule 108.1] Federally Enforceable Through Title V Permit

8. 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(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

9. {520} 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, 9.5.2] Federally Enforceable Through Title V Permit

10. Particulate matter emissions for each heater shall not exceed 0.1 grain/dscf, 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

11. Emissions of sulfur compounds from each heater shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gast; or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rule 2520, 9.4.2 and District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit

12. {524} When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

13. {525} When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

14. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

15. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by: ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2520, 9.4.2; 4305, 6.2.1; 4306, 6.2.1 and 4351, 6.2.1] Federally Enforceable Through Title V Permit

16. 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). To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas not exceeding 0.5% sulfur by weight; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

17. Nitrogen oxide (NOx) emission concentrations in ppmv shall be referenced at dry stack gas conditions, and shall be calculated to 3.00 percent by volume stack gas oxygen and averaged over 60 minutes, and lb/MMBtu rates shall be calculated as lb NO2/MMBtu of heat input (hhv). [District Rules 2520, 9.4.2, 4305, 5.0, 8.2, 4306, 5.0, 8.2 and 4351, 8.1] Federally Enforceable Through Title V Permit

18. Waste gas from packed column sour water stripper shall be piped to fuel gas scrubber listed on S-36-80. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Waste liquids from fuel oil steam stripping column shall be piped to closed stripped sour water holding tank. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Natural gas combusted in units shall be of PUC quality. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Fuel oil stripped water shall be piped, via closed piping, to sour water stripper only. [District NSR Rule] Federally Enforceable Through Title V Permit

22. Sour water stripper gas outlet shall discharge only into fuel gas scrubber inlet piping listed on S-36-80-0. [District NSR Rule] Federally Enforceable Through Title V Permit

23. Sour water stripper liquid effluent shall discharge only to a closed stripped sour water holding tank via closed piping. [District NSR Rule] Federally Enforceable Through Title V Permit

24. Both heaters shall be equipped with operational recording fuel flowmeters. [District Rule Rule 1070] Federally Enforceable Through Title V Permit

25. Heat exchangers utilizing cooling water shall be operated and maintained in a manner preventing VOC emissions from the cooling tower. [District NSR Rule] Federally Enforceable Through Title V Permit

26. Process unit turn-around shall be operated in accordance with Rule 4454. [District Rule 4454] Federally Enforceable Through Title V Permit

27. Permittee shall comply with all applicable inspection, maintenance, and recordkeeping requirements of Rules 4451 and 4452. [District Rules 4451, 4452] Federally Enforceable Through Title V Permit

28. Emissions from 25 MMBtu/hr Visbreaker heater shall not exceed any of the following: NOx (as NO2): 30 ppmv @ 3% O2, PM10: 0.004 lb/MM Btu, CO: 400 ppmv @ 3% O2 and VOC: 0.0055 lb/MMBtu. [Stipulated Abatement Order S-00-40P and District Rules 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

29. 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 and 4306] Federally Enforceable Through Title V Permit

30. 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

31. 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] Federally Enforceable Through Title V Permit

32. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

33. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

34. If permittee fails any compliance demonstration for NOx and 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 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

35. 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 2201, 2520, 9.4.2, 4305, 4306 and 4351] Federally Enforceable Through Title V Permit

36. 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

37. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit

38. 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

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

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

41. 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 and 4306] Federally Enforceable Through Title V Permit

42. 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 and 4306] Federally Enforceable Through Title V Permit

43. Records of fuel consumed in both heaters shall be maintained for a period of five years shall be made available for District inspection upon request. [District Rule 1070 and 2520, 9.5.2] Federally Enforceable Through Title V Permit

44. Permittee shall maintain records of fuel hhv and the cumulative annual fuel combusted (scf and Btu) for a period of five years and shall make such records readily available for District inspection upon request. [District Rule 2201 and 2520, 9.5.2 and 4351] Federally Enforceable Through Title V Permit

45. 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, 9.4.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

46. Annual test results submitted to the District from unit(s) representing a group of units may be used to measure NOx 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 Rules 2520, 9.4.2, 4305, 6.3.2, and 4351, 6.3] Federally Enforceable Through Title V Permit

47. The following conditions must be met for representative unit(s) to be used to test for NOx 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 Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

48. All units in a group for which representative units are source for NOx 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 each unit of the group including all preventative and corrective maintenance work done. [District Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

49. All units in a group for which representative units are source tested for NOx 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 Rules 2520, 9.4.2, and 4305, 6.3.2] Federally Enforceable Through Title V Permit

50. The number of representative units source tested for NOx 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, 9.4.2] Federally Enforceable Through Title V Permit

51. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

52. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of District Rule 4801, section 3.1 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

53. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2 and 2520, 9.4.2] Federally Enforceable Through Title V Permit

54. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, and 4306] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-36-115-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: SAN JOAQUIN REFINING COMPANY
MAILING ADDRESS: PO BOX 5576
BAKERSFIELD, CA 93388

LOCATION: STANDARD AND SHELL ST
BAKERSFIELD, CA 93308

SECTION: 14/23 **TOWNSHIP:** 29S **RANGE:** 27E

EQUIPMENT DESCRIPTION:
19.9 MW (NOMINAL) COGENERATION UNIT INCLUDING SOLAR TITAN MODEL 250-30000S NATURAL/REFINERY/OILFIELD GAS-FIRED TURBINE ENGINE WITH SOLONOX COMBUSTORS, LUBE OIL COOLER (HEAT EXCHANGER), SELECTIVE CATALYTIC REDUCTION, OXIDATION CATALYST, 220.8 MMBTU/HR NATURAL/REFINERY/OILFIELD GAS-FIRED DUCT BURNER WITH ZEECO MODEL GB 265 COMBUSTORS, WASTE HEAT RECOVERY UNIT WITH HOT OIL HEAT EXCHANGER, AND WASTE HEAT BOILER

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. This Authority to Construct (ATC) shall be implemented concurrently with ATCs S-36-1-15, '-37-14, and '-42-10. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 2,041 lb, 2nd quarter - 2,041 lb, 3rd quarter - 2,041 lb, and 4th quarter - 2,041 lb. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-36-115-0 : May 3 2012 11:58AM – RICKARDK : Joint Inspection Required with RICKARDK

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 2,257 lb, 2nd quarter - 2,257 lb, 3rd quarter - 2,257 lb, and 4th quarter - 2,257 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 12/18/2008, in effect 6/10/2010). [District Rule 2201] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 3,840 lb, 2nd quarter - 3,840 lb, 3rd quarter - 3,840 lb, and 4th quarter - 3,840 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 12/18/2008, in effect 6/10/2010). [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1,228 lb, 2nd quarter - 1,228 lb, 3rd quarter - 1,228 lb, and 4th quarter - 1,228 lb. [District Rule 2201] Federally Enforceable Through Title V Permit
8. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
9. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
10. Turbine shall be fired on oilfield gas and/or natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Duct burner shall be fired on refinery gas, oilfield gas, and/or natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
12. The owner or operator shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H2S in the fuel gas. [40 CFR 60.107a, 60.4360, 60.4365, 60.4370, and 60.4415(a)(1)] Federally Enforceable Through Title V Permit
13. A totalizing mass or volumetric fuel flow meter shall be utilized on each fuel source and maintained to calculate the amount of gas combusted based on measured flow meter parameters (fuel pressure and temperature), gas composition, and HHV of the fuel. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
14. Combined turbine and duct burner refinery gas and oilfield gas heat input shall not exceed the following annual limits: 142,174.8 MMBtu/yr of refinery gas and 59,305.2 MMBtu/yr of oilfield gas. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Combined turbine and duct burner refinery gas and oilfield gas heat input shall not exceed the following daily limits: 466.56 MMBtu/day of refinery gas and 191.28 MMBtu/day of oilfield gas. [District Rule 2201] Federally Enforceable Through Title V Permit
16. Combined turbine and duct burner total heat input shall not exceed 8,656.8 MMBtu/day or 3,053,386 MMBtu/year. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Sulfur content of natural gas and oil field gas in the fuel being combusted shall not exceed 1.0 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
18. Sulfur content of refinery gas in the fuel being combusted shall not exceed 5.53 grains/100 scf. [40 CFR 60.4330(a)(2), 60.102a(g)(1)(ii), 60.104a, and District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
19. Emissions from the cogeneration system, except during periods of startup and shutdown, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0071 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx, CO and VOC emission limits are based on 1-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. Duct burner emissions, when operated without the turbine operating, shall not exceed any of the following limits: 2 ppmvd NOx (0.0074 lb/MMBtu) @ 15% O2 referenced as NO2; 4.0 ppmvd CO (0.0090 lb/MMBtu) @ 15% O2; 0.0076 lb-PM10/MMBtu; 2.0 ppmvd VOC (0.0026 lb/MMBtu) referenced as methane. NOx and CO emission limits are based on -hour 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201, 4201, and 4703] Federally Enforceable Through Title V Permit

21. Start-up emissions shall not exceed 15.3 lb-NOx/hr, 548.1 lb-CO/hr, or 34.1 lb-VOC/hr. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Shutdown emissions shall not exceed 12.8 lb-NOx/hr, 648.6 lb-CO/hr, or 39.0 lb-VOC/hr. [District Rule 2201] Federally Enforceable Through Title V Permit

23. Duration of Start-ups shall not exceed 2 hours/day or 24 hours/year. Duration of Shutdowns shall not exceed 1 hour/day or 12 hours/year. [District Rule 2201] Federally Enforceable Through Title V Permit

24. Emissions from the gas turbine system shall not exceed any of the following limits: 98.5 lb-NOx/day or 22,626 lb-NOx/year referenced as NO2; 1,811.8 lb-CO/day or 47,821 lb-CO/year; 33.4 lb-SOx/day or 11,368 lb-SOx/year; 61.2 lb-PM10/day or 21,596 lb-PM10;year; 126.5 lb-VOC/day or 9,052 lb-VOC/year referenced as methane. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201] Federally Enforceable Through Title V Permit

25. Ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24-hour average period. [District Rule 2201] Federally Enforceable Through Title V Permit

26. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit

27. During initial performance testing, the ammonia injection rate shall be monitored concurrently with each testing run to establish acceptable values and ranges that provide a reasonable assurance of ongoing compliance with the emissions limitations stated in this permit (with or without the turbine operating). The minimum ammonia injection rate(s) demonstrated during the initial performance test to result in compliance with the NOx emission limits shall by imposed as a condition in the Permit to Operate. [District Rule 2201 and 40 CFR 60.334(f)(3)] Federally Enforceable Through Title V Permit

28. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]

29. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

30. If the ammonia injection rate is less than the minimum ammonia injection rate demonstrated during the initial compliance test, the permittee shall return the ammonia injection rate above the minimum ammonia injection rate established during compliance testing as soon as possible, but no longer than 8 hours after detection. If the ammonia injection rate is not returned above the minimum ammonia injection rate established during compliance testing within 8 hours, the permittee shall notify the District within the following 1 hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced ammonia injection rate. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must 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 Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

31. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, O2, and NH3 weekly. If compliance with the NOx and CO emissions is demonstrated for eight (8) consecutive weeks, then the monitoring frequency will be reduced to monthly. If deviations are observed in two consecutive months, monitoring shall revert to weekly until 8 consecutive weeks show no deviations. 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 one (1) day of restarting the unit unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the week if on a weekly monitoring schedule. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the NOx and/or CO concentrations, as measured by the permittee with a portable analyzer, exceed the permitted emission limits, the permittee shall notify the District and return the NOx and CO concentrations to the permitted emission limits as soon as possible but no longer than eight (8) hours after detection. If the permittee's portable analyzer readings continue to exceed the permitted emissions limits after eight (8) hours, the permittee shall notify the District within the following one (1) hour, and conduct a certified source test within 60 days to demonstrate compliance with the permitted emissions limits. In lieu of conducting a source test, the permittee may stipulate that a violation has occurred, subject to enforcement action. The permittee must 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 2201 and 4703] Federally Enforceable Through Title V Permit

33. Compliance with ammonia emission limit shall be demonstrated utilizing one of the following procedures: 1) The permittee may utilize a continuous in-stack ammonia monitor to verify compliance with the ammonia emissions limit. 2) The permittee may utilize a District-approved calculation method using measured surrogate parameters to determine the daily ammonia emissions in ppmvd @ 15% O2. The permittee shall submit a detailed calculation protocol or monitoring plan for District Approval at least 60 days prior to the commencement of operation. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit

34. 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

35. Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NOx output. [District Rule 4703, 6.2.2] Federally Enforceable Through Title V Permit

36. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit

37. Source testing to determine compliance with the NOx, CO, and NH3 emission rates (ppmvd @ 15% O2) during normal operation shall be conducted with the GTE and duct burner firing concurrently and with the duct burner fired solely within 90 days of initial startup under this permit and annually thereafter. [District Rules 2201and 40 CFR 60.4400(a)] Federally Enforceable Through Title V Permit

38. Unit shall demonstrate compliance annually with NOx and CO emissions limits with the turbine in operation and not in operation. An annual demonstration of compliance with the turbine in operation is not required in any year in which the turbine is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the turbine. An annual demonstration of compliance with the turbine not in operation is not required in any year in which the turbine operated continuously in conjunction with the duct burner in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the turbine. [40 CFR 60.4340 and District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

39. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O2) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081] Federally Enforceable Through Title V Permit

40. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

41. The following test methods shall be used: NOx - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, and 40 CFR 60.4400 (1)(i)] Federally Enforceable Through Title V Permit

42. 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

43. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 1081]

44. If the gas turbine system is not fired on PUC-regulated or FERC-regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3246; D4084; D4468; D6228; or D6667; or double GC for H2S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.4415(a)(1)(i)] Federally Enforceable Through Title V Permit

45. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703] Federally Enforceable Through Title V Permit

46. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703] Federally Enforceable Through Title V Permit

47. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703] Federally Enforceable Through Title V Permit

48. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit

49. The owner or operator shall conduct a root cause analysis succeeding any SO2 discharge to atmosphere that exceeds 500 lb/day. Operator shall record the date and duration of the discharge, the results of the root cause analysis, and the action taken as a result of the root cause analysis. [40 CFR 60.103a] Federally Enforceable Through Title V Permit

50. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up and each shutdown time period; and, on a monthly basis, fuel HHV. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

51. The owner or operator shall submit a written report of continuous fuel H2S monitoring for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess H2S limits, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the monitor was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [] [40 CFR 60.4375(a) and 60.4395] Federally Enforceable Through Title V Permit

52. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [40 CFR 60.108a and District Rules 2201 and 4703] Federally Enforceable Through Title V Permit