



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

FEB 14 2012

Se Dang Le
California Dairies Inc
2000 N Plaza Drive
Visalia, CA 93291

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1111009

Dear Mr. Le:

Enclosed for your review and comment is the District's analysis of California Dairies Inc's application for an Authority to Construct for the installation of two 5.7 MW gas turbines with heat recovery steam generators (HRSGs) to provide electricity and steam for facility operation, at 2000 N Plaza Drive, Visalia, CA.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (661) 392-5617.

Sincerely,

A handwritten signature in black ink, appearing to read "David Warner", with a long horizontal flourish extending to the right.

David Warner
Director of Permit Services

DW: RUE/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
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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

FEB 14 2012

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

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1111009

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of California Dairies Inc's application for an Authority to Construct for the installation of two 5.7 MW gas turbines with heat recovery steam generators (HRSGs) to provide electricity and steam for facility operation, at 2000 N Plaza Drive, Visalia, CA.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (861) 392-5617.

Sincerely,

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David Warner
Director of Permit Services

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to California Dairies Inc for the installation of two 5.7 MW gas turbines with heat recovery steam generators (HRSGs) to provide electricity and steam for facility operation, at 2000 N Plaza Drive, Visalia, CA.

The analysis of the regulatory basis for this proposed action, Project #S-1111009, 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 this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Two New Gas Turbines and Modifications to 3 Existing Boilers

Facility Name: California Dairies Inc. Date: January 25, 2012
Mailing Address: 2000 N. Plaza Drive Engineer: Richard Edgehill
Visalia, CA 93291 Lead Engineer: Allan Phillips
Contact Person: Sy Dang Le and Richard Wilson (WZI)
Telephone: (559) 233-5154 Ext. 119 (SL) and (661) 326-1112
Fax: (559) 268-5101
E-Mail: sle@californiadairies.com and Richard Wilson [Rwilson@wziinc.com]
Application #(s): S-7063-8-5, '-9-5, '-18-2, '-19-0, and '-20-0
Project #: S1111009
Deemed Complete: May 3, 2011

I. Proposal

California Dairies Inc (CDI) is applying for Authorities to Construct (ATCs) to install two 5.7 MW gas turbines with heat recovery steam generators (HRSGs) to provide electricity and steam for facility operation. The combined use of the cogeneration units will not exceed 13,520 hr/yr which is equivalent to full time use (8760 hr/yr) for one unit and ½ time use (4760 hr/yr) for the other cogeneration unit. To partially mitigate the increase in emissions, annual use of three existing 63 MMBtu/hr boilers (S-7063-8, '-9, and '-18) will be reduced. Only two of the three boilers will operate at any time with the combined annual operation limited to 1440 hr/yr.

Applicant has requested a 60-day period for turbine commissioning. Emissions concentrations of NOx and VOC (ppmv) will be elevated but no excess emissions are expected during this time period.

Additionally, applicant has proposed simultaneous operation of two of the three boilers (pre-project operation) and turbines during the commissioning period. This is allowable under District Rule 2201 Section 3.40.1 as the turbines are in part replacing the boilers in this stationary source project:

3.40.1 The modification or shutdown resulting in the necessary emission reductions shall occur not later than the date of initial operation of the new or modified emissions unit. If the new or modified emissions unit is, in whole or in part, a replacement for an existing emissions unit at the same stationary source, the APCO may allow a maximum of 90 days as a start up period for simultaneous operation of the existing emissions unit and the replacement emissions unit.

All of the proposed ATCs will include the following condition:

ATCs S-7063-8-5, '-9-5, and '-18-2 shall be implemented within 90 days of startup of turbines S-7063-19 and '-20. [District Rule 2201] N

The increase in NOx and VOC emissions from the new turbines triggers a Federal Major Modification and therefore public notice is required. BACT and offsets are also required.

Disposition of Outstanding ATCs

ATCs S-7063-8-3 and '-9-3, authorize a SLC which limits operation of only two of '-8, '-9, and '-18 at any one time, as stated in the following condition:

Except for those periods necessary to transition services from one boiler to another, conduct mandatory emissions testing, or testing during repairs, only two of the three boilers S-7063-8, -9, and -18 shall operate at any one time. [District Rule 2201 and CEQA] N

These ATCs have been implemented and serve as the base documents. PTO S-7063-18-0 also includes this condition. ATCs S-7063-8-3 and '-9-3 and PTOs S-7063-8-1, '-9-1, and '-18-0 are included in **Attachment I**.

Title V Requirements

CDI does not have a Title V PTO and therefore the requirements of Rule 2520 are not applicable.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92) – not applicable - does not apply to gas turbines
Rule 4703	Stationary Gas Turbines (9/20/07)
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

This facility is located at 2000 N Plaza Dr, Visalia, CA. The facility 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

Two Solar Taurus 60S gas turbines with HRSG will be installed. The units will be equipped with Selective Catalytic Reduction (SCR) to control the emissions of NOx and a CO catalyst to control the emissions of CO and VOCs.

The turbines will convert thermal energy, produced by the combustion of natural gas, into mechanical energy. Air is supplied to each turbine through an inlet air filter and evaporative cooling system. The air is compressed in the compressor section of the turbine, natural gas is injected in the combustion chambers, the natural gas and compressed air ignite in the combustion chamber, and the exhaust gasses pass through the power turbine blades which in turn power the compressor section and an electrical generator.

The cogeneration units will allow all three existing boilers to be used less.

V. Equipment Listing

Pre-Project Equipment Description:

ATC S-7063-8-3: MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: ADD SLC LIMITING OPERATION OF ONLY TWO OF THE THREE BOILERS S-7063-8, '-9 AND '-18 AT ANY ONE TIME

ATC S-7063-9-3: MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: ADD SLC LIMITING OPERATION OF ONLY TWO OF THE THREE BOILERS S-7063-8, '-9 AND '-18 AT ANY ONE TIME

PTO S-7063-18-0: 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NO_x BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM

Proposed Modification:

ATC S-7063-8-5: MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: LIMIT COMBINED USE OF '-8, '-9 and '-18 TO 90,720 MMBTU/YR

ATC S-7063-9-5: MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: LIMIT COMBINED USE OF '-8, '-9 and '-18 TO 90,720 MMBTU/YR

ATC S-7063-18-2: 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM

MODEL NVC17-G-40 ULTRA LOW NO_x BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: LIMIT COMBINED USE OF '-8, '-9 and '-18 TO 90,720 MMBTU/YR

Post Project Equipment Description:

- PTO S-7063-8-5:** 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM
- PTO S-7063-9-5:** 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM
- PTO S-7063-18-2:** 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NO_x BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM
- PTO S-7063-19-0:** 5.7 MW NATURAL GAS-FIRED SOLAR TAURUS 60S TURBINE POWERING AN ELECTRICAL GENERATOR WITH AN UNFIRED HEAT RECOVERY STEAM GENERATOR WITH SELECTIVE CATALYTIC REDUCTION AND AN OXIDATION CATALYST
- PTO S-7063-20-0:** 5.7 MW NATURAL GAS-FIRED SOLAR TAURUS 60S TURBINE POWERING AN ELECTRICAL GENERATOR WITH AN UNFIRED HEAT RECOVERY STEAM GENERATOR WITH SELECTIVE CATALYTIC REDUCTION AND AN OXIDATION CATALYST

VI. Emission Control Technology Evaluation

Boilers S-7063-8, '-9, and '-18

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

The use of flue gas re-circulation (FGR) can reduce nitrogen oxides (NO_x) emissions by 60% to 70%. In an FGR system, a portion of the flue gas is re-circulated back to the inlet air. As

flue gas is composed mainly of nitrogen and the products of combustion, it is much lower in oxygen than the inlet air and contains virtually no combustible hydrocarbons to burn. Thus, flue gas is practically inert. The addition of an inert mass of gas to the combustion reaction serves to absorb heat without producing heat, thereby lowering the flame temperature. Since thermal NO_x is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NO_x.

Gas Turbines S-7063-19-0 and '-20-0

SCR

Both 5.7 MW turbines will be equipped with SCR systems. Each SCR system employs ammonia injection in the gas turbine exhaust upstream of a catalyst which reduces NO_x to N₂ and O₂. Unreacted ammonia (ammonia slip) will be limited to 5 ppmv @ 15% O₂.

CO oxidation Catalyst

A CO oxidation catalyst will also be installed. The system consists of an oxidizing catalyst designed to oxidize unreacted hydrocarbons. The catalyst will control both CO and VOC emissions.

SCR Manufacturer's Emissions Guarantee is included in **Attachment II**.

VII. General Calculations

A. Assumptions

New Turbines

Operating schedule:	24 hours/day
Annual turbine combined fuel use:	13,520 hr/yr x 64.47 MMBtu/hr = 871,634 MMBtu/yr*
Annual combined boiler use:	1440 hr/yr x 63 MMBtu/hr = 90,720 MMBtu/yr
EPA F-factor:	8,578 dscf/MMBtu (1 atm, 60°F)
Fuel heating value:	1,020 Btu/SCF (HHV) 940 Btu/SCF (LHV)
Heat Input:	64.47 MMBtu/hr (supplemental application form)
VOC Molecular Weight:	16 lb/lbmol

*Initial proposal of 8760 hr/yr for '-19 and 4,760 hr/yr for '-20 revised in 9-26-11 email to 13,520 hr/yr combined

Startup and Shutdown Emissions

Assume 3 startup and 3 shutdown events per day and 365 startup and 365 shutdown events per year. Note that manufacturer's information on startup and shutdown emissions in **Attachment II** indicates less than 6 minutes per event. Therefore, startup and shutdown times are neglected with the emissions added to 24 hr/day base load emissions. Note that startup time is for the turbine alone without SCR.

Existing Boilers '-8, '-9, and '-18 – Pre-Project

Operating schedule: 24 hours per day (only 2 of 3 allowed to operate, each may operate 8760 hr/yr)

The units are fired solely on PUC regulated natural gas
Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
F-Factor for Natural Gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B)

Existing Boilers '-8, '-9, and '-18– Post-Project

Operating schedule: 24 hours per day
Combined annual use of '-8, '-9, and '-18 is 1440 hr/yr

Commissioning Period

Commissioning period: 24 hr/day, 60 days total (combined 2880 hr for 2 turbines, both turbines operate at 25% load, then 10,640 hr normal operation during 1st year)

Turbines will operate in compliance with Rule 4703 except during startup and shutdown

B. Emission Factors

Turbine Emission Factors (normal operation and commissioning period):

Pollutant	Emission Factor (ppmv @ 15% O ₂)	Emission Factor (lb/MMBtu)	Source
NO _x	2.5	0.0092	Manufacturer Guarantee
SO _x	-	0.00285	District Policy APR 1720
PM ₁₀		0.021	Manufacturer Guarantee
CO	6.0	0.0134, 0.0969**	Manufacturer Guarantee
VOC	2.0	0.0025, 0.0078**	BACT Limit
NH ₃	5.0	0.0068	Manufacturer Guarantee

* $(2.5 \text{ ft}^3 \text{ NO}_x / 10^6 \text{ ft}^3 \text{ gas@15\%O}_2) (20.95 / (20.95 - 15)) \text{ft}^3 \text{ gas@15\%O}_2 / \text{ft}^3 \text{ gas@0\%O}_2$
X (8578 dscf @ 0% O₂/MM Btu) (lbmol/379.5 ft³)(46 lb/lbmol) = 0.0092 lb/MMBtu

$(6.0 \text{ ft}^3 \text{ CO} / 10^6 \text{ ft}^3 \text{ gas@15\%O}_2) (20.95 / (20.95 - 15)) \text{ft}^3 \text{ gas@15\%O}_2 / \text{ft}^3 \text{ gas@0\%O}_2$
X (8578 dscf @ 0% O₂/MM Btu) (lbmol/379.5 ft³)(28 lb/lbmol) = 0.0134 lb/MMBtu

$(2.0 \text{ ft}^3 \text{ VOC} / 10^6 \text{ ft}^3 \text{ gas@15\%O}_2) (20.95 / (20.95 - 15)) \text{ft}^3 \text{ gas@15\%O}_2 / \text{ft}^3 \text{ gas@0\%O}_2$
X (8578 dscf @ 0% O₂/MM Btu) (lbmol/379.5 ft³)(16 lb/lbmol) = 0.0025 lb/MMBtu

$(5.0 \text{ ft}^3 \text{ NH}_3 / 10^6 \text{ ft}^3 \text{ gas@15\%O}_2) (20.95 / (20.95 - 15)) \text{ft}^3 \text{ gas@15\%O}_2 / \text{ft}^3 \text{ gas@0\%O}_2$
X (8578 dscf @ 0% O₂/MM Btu) (lbmol/379.5 ft³)(17 lb/lbmol) = 0.0068 lb/MMBtu

**commissioning period

The turbines will be fired exclusively on PUC-quality natural gas. Therefore, the applicable SO_x emission factor is 0.00285 lb/MMBtu from District policy APR 1720.

Startup Emissions		
	lb/event	Source
NO _x	0.5	Manufacturer
CO	12.5	Manufacturer
VOC	1.0	Manufacturer

Shutdown Emissions		
	lb/event	Source
NO _x	0.4	Manufacturer
CO	4.3	Manufacturer
VOC	0.4	Manufacturer

Boiler Emission Factors:

S-7063-8 and '9

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	8 lb-NO _x /MMscf	0.008 lb-NO _x /MMBtu	7 ppmvd NO _x (@ 3%O ₂)	Base Document
SO _x	2.85 lb-SO _x /MMscf	0.00285 lb-SO _x /MMBtu		District Policy APR 1720
PM10	7.6 lb-PM10/MMscf	0.0076 lb- PM10/MMBtu		Base Document
CO	37 lb-CO/MMscf	0.037 lb-CO/MMBtu	50 ppmvd CO (@ 3%O ₂)	Base Document
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmvd VOC (@ 3%O ₂)	Base Document

S-7063-18-0

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	6.2 lb-NO _x /MMscf	0.0062 lb-NO _x /MMBtu	5 ppmvd NO _x (@ 3%O ₂)	Base Document
SO _x	2.85 lb-SO _x /MMscf	0.00285 lb-SO _x /MMBtu		District Policy APR 1720
PM10	7.6 lb-PM10/MMscf	0.0076 lb- PM10/MMBtu		Base Document
CO	37 lb-CO/MMscf	0.037 lb-CO/MMBtu	50 ppmvd CO (@ 3%O ₂)	Base Document
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmvd VOC (@ 3%O ₂)	Base Document

C. Calculations

1. Pre-Project Potential to Emit (PE1)

S-7063-8 and '-9 (each)

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO_x	0.008	63	24	12.1
SO_x	0.00285	63	24	4.3
PM₁₀	0.0076	63	24	11.5
CO	0.037	63	24	55.9
VOC	0.0055	63	24	8.3

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO_x	0.008	63	8,760	4,415
SO_x	0.00285	63	8,760	1,573
PM₁₀	0.0076	63	8,760	4,194
CO	0.037	63	8,760	20,420
VOC	0.0055	63	8,760	3,035

S-7063-18

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO_x	0.006	63	24	9.4
SO_x	0.00285	63	24	4.3
PM₁₀	0.0076	63	24	11.5
CO	0.037	63	24	55.9
VOC	0.0055	63	24	8.3

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO_x	0.006	63	8,760	3,422
SO_x	0.00285	63	8,760	1,573
PM₁₀	0.0076	63	8,760	4,194
CO	0.037	63	8,760	20,420
VOC	0.0055	63	8,760	3,035

The total PE1 for units '-8, '-9, and '-18 is limited by permit condition (ATCs S-7063-8-3 and '-9-3 and PTO S-7063-18-0), Condition #7). Combined emissions for boilers '-8, '-9, and '-18 (for SSPE1) are calculated below.

NO_x: 2 x 4415 lb/yr = 8830 lb/yr
 SO_x: 2 x 1573 lb/yr = 3146 lb/yr
 PM₁₀: 2 x 4194 lb/yr = 8388 lb/yr
 CO: 2 x 20,420 lb/yr = 40,840 lb/yr
 VOC: 2 x 3035 lb/yr = 6070 lb/yr

S-7063-19-0 and '-20-0

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

2. Post Project Potential to Emit (PE2)

S-7063-8 and '-9 (each)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_x	0.008	63	24	12.1
SO_x	0.00285	63	24	4.3
PM₁₀	0.0076	63	24	11.5
CO	0.037	63	24	55.9
VOC	0.0055	63	24	8.3

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_x	0.008	63	720	363
SO_x	0.00285	63	720	129
PM₁₀	0.0076	63	720	345
CO	0.037	63	720	1,678
VOC	0.0055	63	720	249

S-7063-18

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.006	63	24	9.4
SO _x	0.00285	63	24	4.3
PM ₁₀	0.0076	63	24	11.5
CO	0.037	63	24	55.9
VOC	0.0055	63	24	8.3

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.006	63	720	281
SO _x	0.00285	63	720	129
PM ₁₀	0.0076	63	720	345
CO	0.037	63	720	1,678
VOC	0.0055	63	720	249

Combined annual emissions for boilers '-8, '-9, and '-18 (for SSPE2)

NO_x: 2 x 363 lb/yr = 726 lb/yr
 SO_x: 2 x 129 lb/yr = 258 lb/yr
 PM₁₀: 2 x 345 lb/yr = 690 lb/yr
 CO: 2 x 1678 lb/yr = 3356 lb/yr
 VOC: 2 x 249 lb/yr = 498 lb/yr

S-7063-19 and '-20

Daily Startup and Shutdown Emissions

Startup Emissions		
	lb/event	Daily Emissions
NO _x	0.5	3 x 0.5 = 1.5 lb/day
CO	12.5	3 x 12.5 = 37.5 lb/day
VOC	1.0	3 x 1.0 lb/day = 3.0 lb/day

Shutdown Emissions		
	lb/event	Source
NO _x	0.4	3 x 0.4 = 1.2 lb/day
CO	4.3	3 x 4.3 = 12.9 lb/day
VOC	0.4	3 x 0.4 lb/day = 1.2 lb/day

Annual Startup and Shutdown Emissions

Startup Emissions		
	lb/event	Daily Emissions
NO _x	0.5	2 x 365 x 0.5 = 365 lb/yr
CO	12.5	2 x 365 x 12.5 = 9,125 lb/yr
VOC	1.0	2 x 365 x 1.0 lb/day = 730 lb/yr

Shutdown Emissions		
	lb/event	Source
NO _x	0.4	2 x 365 x 0.4 = 292 lb/yr
CO	4.3	2 x 365 x 4.3 = 3,139 lb/yr
VOC	0.4	2 x 365 x 0.4 lb/day = 292 lb/yr

S-7063-19 and '-20 (daily for each and combined annual)
Baseload operation

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.009	64.47	24	14.4
SO _x	0.00285	64.47	24	4.4
PM ₁₀	0.0210	64.47	24	32.5
CO	0.013	64.47	24	20.7
VOC	0.0025	64.47	24	3.9

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.009	64.47	13,520	8,106
SO _x	0.00285	64.47	13,520	2,484
PM ₁₀	0.0210	64.47	13,520	18,304
CO	0.013	64.47	13,520	11,680
VOC	0.0025	64.47	13,520	2,179

Annual emissions (including commissioning)

NO_x: $0.0092 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times (0.25 \times 2880 + 10,640) + 365 + 292$
= 7,395 lb/yr

SO_x: $0.00285 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times (0.25 \times 2880 + 10,640)$
= 2,087 lb/yr

PM₁₀: $0.021 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times (0.25 \times 2880 + 10,640) = 15,380 \text{ lb/yr}$

CO: $64.47 \text{ MMBtu/hr} \times (0.0969 \text{ lb/MMBtu} \times 0.25 \times 2880 + 0.0134 \text{ lb/MMBtu} \times 10,640) + 9,125 + 3,139$
= 25,954 lb/yr

VOC: $64.47 \text{ MMBtu/hr} \times (0.0078 \text{ lb/MMBtu/hr} \times 0.25 \times 2880 + 0.0025 \text{ lb/MMBtu/hr} \times 10,640) + 730 + 292$
= 3,099 lb/yr

Baseload + Startup and Shutdown Emissions

Daily (each) annual (combined)

Post Project Potential to Emit (PE2)			
	Daily Emissions (lb/day)	Annual Emissions (lb/year)	1 st Year Annual Emissions with Commissioning (lb/year)
NO _x	14.4 + 1.5 + 1.2 = 17.1	8106 + 365 + 292 = 8,763	7,395
SO _x	4.4	2484	2,087
PM ₁₀	32.5	18,304	15,380
CO	20.7 + 37.5 + 12.9 = 71.1	11,680 + 9,125 + 3,139 = 24,118	25,954*
VOC	3.9 + 3.0 + 1.2 = 8.1	2,179 + 730 + 292 = 3,201	3,099

*conservatively high startup and shutdown emissions included and therefore 1st year CO emissions are expected to be less than annual emissions of CO

Ammonia Emissions

$0.0069 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times 24 \text{ hr/day} = 10.7 \text{ lb/day}$

$0.0069 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times 13,520 \text{ hr/yr} = 6,014 \text{ lb/yr}$

Greenhouse Gas Emissions (District Policy APR 2015)

Pre-project annual heat input

S-7063-8, '-9, and '-18

$2 \times 63 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} = 1,103,760 \text{ MMBtu/yr}$

Post-project annual heat input

S-7063-8, '-9, and '-18

$2 \times 63 \text{ MMBtu/hr} \times 720 \text{ hr/yr} = 90,720 \text{ MMBtu/yr}$

S-7063-19

64.47 MMBtu/hr x 8760 hr/yr = 564,757 MMBtu/yr

S-7063-20

64.47 MMBtu/hr x 4760 hr/yr = 306,877 MMBtu/yr

Net change in heat input

90,720 MMBtu/yr + 564,757 MMBtu/yr + 306,877 MMBtu/yr - 1,103,760 MMBtu/yr
= -141,406 MMBtu/yr

There is a decrease in annual heat input rating and therefore an annual decrease in GHG emissions.

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

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

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

Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
PTO except where indicated	NO _x	SO _x	PM ₁₀	CO	VOC
S-7063-3-0	0	0	517	0	0
S-7063-4-0	0	0	517	0	0
S-7063-5-0	0	0	517	0	0
S-7063-6-0	0	0	517	0	0
S-7063-7-2	14,016	999	16,347	79,541	1,927
ATC S-7063-8-3	4415 x 2	1573 x 2	4194 x 2	20,420 x 2	3035 x 2
ATC S-7063-9-3	= 8830	= 3146	= 8388	= 40,840	= 6,070
S-7063-18-0					
S-7063-10-0	0	0	2,268	0	0
S-7063-12-1	14,016	999	16,347	79,541	1,927
S-7063-13-0	0	0	512	0	0
S-7063-14-0	0	0	512	0	0
S-7063-15-0	0	0	512	0	0
S-7063-16-0	0	0	512	0	0
S-7063-17-0	258	0	4	31	6
Post Project SSPE (SSPE1)	37,120	5,144	47,470	199,953	9,930

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

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

Post Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
S-7063-3-0	0	0	517	0	0
S-7063-4-0	0	0	517	0	0
S-7063-5-0	0	0	517	0	0
S-7063-6-0	0	0	517	0	0
S-7063-7-2	14,016	999	16,347	79,541	1,927
S-7063-8-5	726	258	690	3356	498
S-7063-9-5					
S-7063-18-2					
S-7063-10-0	0	0	2,268	0	0
S-7063-12-1	14,016	999	16,347	79,541	1,927
S-7063-13-0	0	0	512	0	0
S-7063-14-0	0	0	512	0	0
S-7063-15-0	0	0	512	0	0
S-7063-16-0	0	0	512	0	0
S-7063-17-0	258	0	4	31	6
S-7063-19-0	8,763	2,484	18,304	24,118	3,201
S-7063-20-0					
Post Project SSPE (SSPE2)	37,779	4740	58,076	186,587	7,559

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	PM _{2.5} *	CO	VOC
Pre-Project SSPE (SSPE1)	37,120	5,144	47,470	<47,470	199,953	9,930
Post Project SSPE (SSPE2)	37,779	4,740	58,076	<58,076	186,587	7,559
Major Source Threshold	20,000	140,000	140,000	200,000	200,000	20,000
Major Source?	Yes	No	No	No	No	No

* cannot exceed PM10

As seen in the table above, the facility is an existing Major Source for NO_x only and also is not becoming a Major Source for SO_x, PM₁₀, PM_{2.5}, CO, or VOC 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.

S-7063-8, '9, and '18

SO_x, PM₁₀, CO, and VOC

As shown in Section VII.C.5 above, the facility is not a Major Source for SO_x, PM₁₀, CO, and VOC. Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1) for these air contaminants.

NO_x

Clean Emissions Unit, Located at a Major Source

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.

This emissions units are equipped with an ultra low NO_x burners and meet the NO_x emissions limit requirements of Rule 4320 of 7 ppmv @ 3% O₂ for units with a total rated heat input > 20.0 MMBtu/hr which is Achieved-in-Practice BACT. Therefore, Baseline Emissions (BE) of NO_x are equal to the Pre-Project Potential to Emit (PE1).

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

Baseline Emissions [BE] (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
S-7063-8	4415	1573	4194	20420	3035
S-7063-9	4415	1573	4194	20420	3035
S-7063-18	3422	1573	4194	20420	3035

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 not a Major Source for SO_x, PM₁₀ and VOC emissions; therefore, the project does not constitute a SB 288 Major Modification for SO_x, PM₁₀ and VOC emissions.

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

SB 288 Major Modification Thresholds (Existing Major Source)

Pollutant	Project PE (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	8763 + 363 + 363 = 9489	50,000	No

8. Federal Major Modification

As discussed in Section VII.C.5 above, the facility is not a Major Source for SO_x, PM10 and VOC emissions; therefore, the project does not constitute a Federal Major Modification for SO_x, PM10 and VOC emissions.

NO_x

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not Federal Major Modifications if they meet the criteria of the "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a Federal Major Modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a Federal Major Modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.
- Note that emissions decreases associated with a project are not counted.

Pollutant	Threshold (lb/year)
VOC	0
NO _x	0
PM10	30,000
SO _x	80,000

The Net Emissions Increases (NEIs) for purposes of determination of a "Less-Than-Significant Emissions Increase" exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Net Emission Increase for New Unit (NEI)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions unit in this project,

NEI = PE2 - BAE

BAE = 0 for the new emissions unit; therefore,

NEI = PE2

Units S-7063-19 and '20 are new units, and baseline actual emissions are equal to zero, and therefore, pursuant to 40 CFR 51.165 (a)(2)(ii)(D), the Net Emissions Increases for NOx and VOCs are equal to the post-project potential to emit which exceeds the significance thresholds for NOx and VOC, 0 lb/yr, listed in the above table. Therefore, for the two turbines only, the project is a Federal Major Modification.

9. Quarterly Net Emissions Change (QNEC)

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

S-7063-8, '9

QNEC			
Pollutant	PE2 (lb/yr)	PE1 (lb/yr)	QNEC (lb/qtr)
NO _x	363	4,415	-1013
SO _x	129	1,573	-361
PM ₁₀	345	4,194	-962
CO	1,678	20,420	-4685
VOC	249	3,035	-696

S-7063-18

QNEC			
Pollutant	PE2 (lb/yr)	PE1 (lb/yr)	QNEC (lb/qtr)
NO _x	281	3,422	-785
SO _x	129	1,573	-361
PM ₁₀	345	4,194	-962
CO	1,678	20,420	-4685
VOC	249	3,035	-696

S-7063-19 and '-20 (each)

Pollutant	QNEC			
	Annual emissions (lb/year)	divided by	4 quarters/yr =	Quarterly emissions (lb/qtr)
NO_x	4382	/	4 qtr/year	1096
SO_x	1242	/	4	311
PM₁₀	9152	/	4	2288
CO	12059	/	4	3015
VOC	1601	/	4	400

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless 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 two new gas turbines with a PE greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC. BACT is triggered for NO_x, SO_x, PM₁₀, and VOC only since the PEs are greater than 2 lbs/day; however BACT is not triggered for CO since the SSPE2 for CO is not 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

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

Where,

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

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

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

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

Where,

PE1 = The emissions unit's 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

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

S-7603-8, '-9, and '-18

There is no change in daily emissions or emissions factors.

$$\text{PE2} = \text{PE1} \text{ and } \text{EF2} = \text{EF1}$$

Therefore AIPE = 0.

BACT is not triggered for S-7603-8, '-9, and '-18.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project constitutes a Federal Major Modification for NO_x emissions; therefore BACT is triggered for NO_x for all

emissions units in the project for which there is an emission increase. Therefore BACT is not triggered for boilers S-7603-8, '-9, and '-18 as there is no emissions increase.

2. BACT Guideline

BACT Guideline 3.4.3, applies to Gas Turbine with Heat Recovery (≥ 3 MW and ≤ 10 MW) (See **Attachment IV**)

3. Top-Down BACT Analysis

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

Pursuant to the Top Down BACT Analysis (**Attachment V**), BACT is satisfied with:

NO_x: 2.5 ppmv @ 15% O₂, based on a three-hour rolling average (Selective Catalytic Reduction or equal)

VOC: 2.0 ppmv @ 15% O₂, based on a three-hour rolling average (Selective Catalytic Reduction or equal)

PM₁₀: Air Inlet Cooler, Lube Oil Vent Coalescer, and Natural Gas Fuel

SO_x: PUC-regulated natural gas, LPG, or non-PUC-regulated natural gas with < 1.0 grains-S/100 dscf, or equal

The turbines will meet the emission limits of 2.5 ppmv NO_x and 2.0 ppmv VOC @ 15% O₂ and will be equipped with an air inlet cooler and lube oil vent coalescer and fired exclusively on PUC-regulated natural gas.

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	37,779	4,740	58,076	186,587	7,559
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets calculations required?	Yes	No	Yes	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x and PM10 only; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for NO_x and PM10 is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$, for all new or modified emissions units in the project,

Where,

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

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE)

The facility is proposing to install a new emissions unit; therefore Baseline Emissions are equal to zero. Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = $([PE2 - BE] + ICCE) \times DOR$

NOx

Unit	PE2 (lb/yr)	BE (lb/yr)
'-19	8,763	0
'-20		
'-8	2 X 363 = 726	4415 x 2 = 8830
'-9		
'-18		
Total	9,489	8830

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

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

$$\begin{aligned}
 \text{Offsets Required (lb/year)} &= ([9489 - 8830] + 0) \times 1.5 \\
 &= 659 \times 1.5 \\
 &= 989 \text{ lb NO}_x/\text{year}
 \end{aligned}$$

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

<u>DOR</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
1.0	165	165	165	165
1.5	247	247	247	247

ATCs S-7063-19-0 through '-20-0 will each include a $247/2 = \underline{124 \text{ lbs NO}_x/\text{qtr}}$ offset requirement.

The applicant has stated that the facility plans to use ERC certificate N-836-2 to offset the increases in NOx emissions associated with this project. The above certificate has available quarterly NOx credits as follows:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #N-836-2	2298	1078	961	841

ERC N-836-2 is not reserved for any other projects. As seen above, the facility has sufficient credits to fully offset the quarterly NOx emissions increases associated with this project.

PM10

Unit	PE2 (lb/yr)	BE (lb/yr)
'-19	18,304	0
'-20		
'-8	345 x 2 = 690	4194 x 2 = 8388
'-9		
'-18		
Total	18,994	8388

Assuming an offset ratio of 1.5:1, the amount of PM10 ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([18,994 - 8388] + 0) \times 1.5 \\ &= 10,606 \times 1.5 \\ &= 15,909 \text{ lb PM10/year} \end{aligned}$$

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

DOR	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1.0	2652	2652	2652	2652
1.5	3977	3977	3977	3977

ATCs S-7063-19-0 through '-20-0 will each include a $3977/2 = 1988$ lbs PM10/qtr offset requirement.

PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 (District Policy APR 1430, **Attachment VI**). The applicant has stated that the facility plans to use ERC certificate N-986-5 to offset the increases in PM10 emissions associated with this project. The ERC certificate has available quarterly SOx credits as follows:

	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ERC #N-986-5	9000	9000	9000	9000

ERC N-986-5 is not reserved for any other projects. As seen above, the facility has sufficient credits of SOx to fully offset the quarterly PM10 emissions increases associated with this project.

Proposed Rule 2201 (offset) Conditions:

The following offset conditions are included on the ATCs:

Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 132 lb/quarter and PM10: 1988 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201] Y

ERC Certificate Numbers N-836-2 and N-986-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Y

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

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

As demonstrated in VII.C.7, this project is a Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is required.

b. PE > 100 lb/day

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

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	37,120	37,779	20,000 lb/year	No
SO _x	5144	4740	54,750 lb/year	No
PM ₁₀	47,470	58,076	29,200 lb/year	No
CO	199,953	186,587	200,000 lb/year	No
VOC	9,930	7,559	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a 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	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	37,120	37,779	659	20,000 lb/year	No
SO _x	5144	4740	-404	20,000 lb/year	No
PM ₁₀	47,470	58,076	10,606	20,000 lb/year	No
CO	199,953	186,587	-13,366	20,000 lb/year	No
VOC	9,930	7,559	-2371	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 which is a Federal Major modification.

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.

Current Rule 2201 (DEL) Conditions:

S-7063-8 and '-9

Emissions from the natural gas-fired unit shall not exceed any of the following limits: 7.0 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320] N

S-7063-18

Emissions from the natural gas-fired unit shall not exceed any of the following limits: 5.0 ppmvd NOx @ 3% O2 or 0.0062 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320] N

Proposed Rule 2201 (DEL) Conditions:

S-7063-19 and '-20

Emissions from the gas turbine system, when startup or shutdown do not occur, shall not exceed any of the following limits: 2.5 ppmvd NOx @ 15% O2 referenced as NO2; 6.0 ppmvd CO @ 15% O2; 0.021 lb-PM10/MMBtu; 2.0 ppmvd VOC @ 15% O2 referenced as methane; and 0.00285 lb-SOx/MMBtu referenced as SO2. NOx and CO emission limits are based on 3-hour rolling average period. [District Rules 2201 and 4703] N

Upon concluding the initial shakedown period, emissions from the gas turbine system shall not exceed any of the following limits: 17.1 lb-NOx/day referenced as NO2; 4.4 lb-SOx/day ; 32.5 lb-PM10/day; 71.5 lb-CO/day; 8.2 lb-VOC/day referenced as methane; and 10.7 lb-NH3/day. [District Rule 2201] N

No more than 3 startups nor 3 shutdowns shall occur per day and no more than 365 startups nor 365 shutdowns shall occur per year. [District Rule 2201] N

Emissions from the gas turbine system, on days when startup occurs, shall not exceed any of the following limits: 16.0 lb-NOx/day referenced as NO2; 58.6 lb-CO/day; 7.0 lb-VOC/day. [District Rule 2201] N

Emissions from the gas turbine system, on days when shutdown occurs, shall not exceed any of the following limits: 15.7 lb-NOx/day referenced as NO2; 34.0 lb-CO/day; 5.2 lb-VOC/day. [District Rule 2201] N

Ammonia (NH3) emissions shall not exceed 5 ppmvd @ 15% O2 over a 24-hour average period. [District Rule 2201] N

E. Compliance Assurance

1. Source Testing

S-7063-8, '-9, and '-18

Startup source testing will not be required. Source test requirements of Rule 4305, 4306, and 4320 will be discussed below.

S-7063-19 and '-20

For source testing, the exhaust from each gas turbine will be routed through its own SCR system to minimize NO_x emissions. For an SCR system, ammonia (NH₃) slip is an indicator of SCR performance. Therefore, each unit is required to be tested within 60 days of initial startup and annually thereafter for NO_x, CO and NH₃ emissions.

Source testing to determine compliance with the NO_x, CO, VOC, and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 90 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.335(a)] N

2. Monitoring

S-7063-8, '-9, and '-18

Weekly monitoring of flue gas recirculation valve setting is proposed.

S-7063-19 and '-20

Weekly monitoring of NO_x and CO exhaust concentrations with a portable analyzer for NO_x and CO is proposed. The following conditions are included on the ATC regarding ammonia slip monitoring:

The permittee shall monitor and record the stack concentration of NO_x (as NO₂), CO, and O₂ weekly. If compliance with NO_x and CO emission is demonstrated for eight (8) consecutive weeks, then the monitoring frequency shall 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, 4703 and 40 CFR part 64] N

If the NO_x 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 NO_x 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 emission limits after eight (8) hour, 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 permitted emissions limits. 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 and 4703 and 40 CFR part 64] N

Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NO_x and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rule 2201 and 40 CFR part 64]N

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. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. 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 and 40 CFR part 64]

3. Recordkeeping

The permittee shall maintain records of daily and annual natural gas consumption (MMBtu) of gas turbine engine, daily and annual calculated emissions, ammonia injection rate, and catalyst inlet temperature. [District Rule 2201 and 40 CFR Subpart 60.4365] N

All records required to be maintained by this permit shall be maintained for a period of five years and shall be made readily available for District inspection upon request. [District Rule 2201] N

4. Reporting

The permittee is required to submit source test results within 60 after each source test.

Compliance is expected with this Rule.

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 **Attachment VII** of this document for the AAQA summary sheet.

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

The proposed location is in a non attainment area for PM₁₀. The increase in the ambient PM₁₀ concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ¹	Pass ¹
Pm _{2.5}	X	X	X	Pass ²	Pass ²

*Results were taken from the attached PSD spreadsheet.

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

²The criteria pollutants are below EPA's interim level of significance of 1.2 (24 hour) and 0.3 (annual). Since this facility is not a significant PM_{2.5} source (100 tons) only the primary PM_{2.5} emissions were evaluated.

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project 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 Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII, this project constitutes a Federal Major Modification, therefore this requirement is applicable. The Statewide Compliance Certification correspondence is included in **Attachment VIII**.

H. Alternative Siting Analysis

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification.

The current project is a Federal Major Modification and occurs at an existing facility. Since the current project involves only minimal changes to the facility and no change to any other facets of the facility operation, 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 and facilities on a much greater scale, and would therefore result in a much greater impact.

Rule 4001 New Source Performance Standards (NSPS)

S-7063-8, '-9, and '-18

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

The subject boilers have a rating of 63 MMBtu/hr and is fired on natural gas. Subpart Dc has no standards for gas-fired boilers. Therefore the subject boilers are not an affected facility and subpart Dc does not apply.

S-7063-19 and '-20

The proposed GTE are subject to the requirements of this Rule. The applicable subparts are given below:

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 gas turbines are regulated under 40 CFR Part 60 Subpart KKKK. Therefore the units are exempt from the requirements of 40 CFR Part 60 Subpart GG and no further discussion is required.

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

The requirements of the 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 units are new and nominally rated at 64.47 MMBtu/hr and therefore are 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 25 ppmvd @ 15% O₂. This limit is based on 4-hour rolling average or 30-day rolling average as defined in §60.4380(b)(1).

CDI has proposed to meet 2.5 ppmvd NOx @ 15% O₂ on three-hour rolling average period in accordance with Rule 4703. CDI 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 the 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.

CDI has proposed to use PUC-regulated natural gas in the gas turbine with a sulfur content of 1.0 grains/100 scf or less. The following conditions will ensure compliance with the requirements of this section:

Gas turbine shall be fired exclusively on PUC-regulated natural gas with a sulfur content not exceeding 1.0 gr S/100 scf. [District Rule 2201] N

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.

CDI is not proposing to inject water or steam in the GTEs for NOx control. 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:

- Continuous Emissions Monitoring - CDI has not proposed to install and operate a CEMS
- Continuous Parameter Monitoring – (b)(i) not applicable - applies only to diffusion flame turbine
- (b)(ii) not applicable - applies only to lean premix combustion turbines
- (b)(iii) applicable - applies to SCR units and requires continuous monitoring of appropriate parameter to verify proper operation of emissions controls
- (b)(iv) not applicable - applies only to units subject to Part 75 of this chapter

Applicant has proposed to continuously monitor ammonia injection rate to the SCR. The acceptable range will be established during the startup source test.

Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NOx and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rules 2201 and 4703, 40 CFR part 64, 40 CFR 60.4355]N

Section 60.4345 – Requirements of Continuous Emission Monitoring System

This section is not applicable as CEMs have not been proposed.

Section 60.4350 - CEMS Data and Excess NO_x Emissions

CDI has not proposed to install and operate a CEMS.

Section 60.4355 - Parameter Monitoring Plan

This section set forth the requirements for operators that elect to continuously monitor parameters in lieu of installing a CEMS for NO_x emissions. A Parameter Monitoring Plan must be kept onsite.

Applicant has proposed to continuously monitor ammonia injection rate to the SCR. The acceptable range will be established during the startup source test.

Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NO_x and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rules 2201 and 4703, 40 CFR part 64, 40 CFR 60.4355]N

Applicant shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_x emissions control system. [40 CFR 60.4355]

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

CDI has proposed to use PUC regulated natural gas that may contain up to 1.0 grainS/100 scf and therefore sulfur monitoring is not required. The natural gas supplier will provide a purchase contract, tariff sheet or transportation contract for the fuel that demonstrates compliance with this natural gas sulfur content limit.

Section 60.4380 - Excess NO_x 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, CDI is not proposing to monitor surrogate parameters associated with water or steam to fuel ratios to predict NO_x emissions. Therefore, the requirements of this paragraph are not applicable and no further discussion is required.

Paragraph (b) is applicable for turbines using CEM's which has not been proposed.

Paragraph (c) lists requirements for operators who choose to monitor combustion parameters that document proper operation of the NO_x emission controls. CDI is not proposing to monitor combustion parameters.

Section 60.4385 - Excess SO_x Emissions and Monitoring Downtime

CDI has proposed to use PUC regulated natural gas that may contain up to 1.0 grainS/100 scf and therefore this section is not applicable.

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. CDI has proposed to use PUC regulated natural gas that may contain up to 1.0 grainS/100 scf and therefore this section is not applicable.

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. CDI 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 results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 4375(b)] N

Section 60.4400 - NO_x Performance Testing

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

CDI will be required to source test before the end of the commissioning period (i.e. 90 days of initial startup) and annually thereafter. They will be required to source test in accordance with the methods and procedures specified in paragraphs (1), (2), and (3). The following conditions will ensure compliance with the requirements of this section:

Source testing to determine compliance with the NO_x, CO and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 90 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703] N

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] N

The following test methods shall be used: NO_x - 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; natural gas fuel sulfur content: ASTM D3246; natural gas higher heating value (HHV): ASTM D3588-91, 1826-88, or 1945-81. 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)] N

Section 60.4405 - Initial CEMS Relative Accuracy Testing

CEMs is not proposed.

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. The appropriate parameters must be continuously monitored and recorded during each run of the initial performance test for purposes of the parameter monitoring plan.

As discussed above, CDI has proposed to continuously monitor ammonia injection rate to the SCR. The acceptable range will be established during the startup source test.

Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NOx and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rules 2201 and 4703, 40 CFR part 64, 40 CFR 60.4355]N

Section 60.4415 - SOx Performance Testing

CDI will use valid purchase contracts, tariff sheets or transportation contract to verify compliance.

Compliance is expected with this Subpart.

Rule 4102 Nuisance

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

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 (**Attachment VII**), 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-7063-19 and '-20	0	No

The project is approvable without TBACT. No special conditions were needed.

Rule 4201 Particulate Matter Concentration

Section 3.0 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.

The new gas turbines and existing boilers combust only natural gas and are expected to comply with the requirements of this Rule. Therefore, continued compliance is expected with this Rule.

Rule 4703 Stationary Gas Turbines

Section 2.0 of this rule states that 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 MMBtu per hour, except as provided in Section 4.0.

Each gas turbine is rated at heat input rate greater than 3 MMBtu/hour. Therefore, each turbine is subject to the requirements of this rule.

Section 5.1 – NO_x Emission Requirements

Section 5.1.3, Table 5-3, Tier 3 NO_x Compliance Limits, requires the owner or operator to achieve less than or equal to 5 ppmvd NO_x @ 15% O₂ to meet Tier-3 compliance schedule listed in Section 7.3.

CDI has proposed to meet 2.5 ppmvd NO_x @ 15% O₂ on three-hour rolling average period in using SCR with ammonia injection systems. Therefore, compliance is expected with this section.

Section 5.2 – CO Emission Requirements

Section 5.2, Table 5-4, CO Compliance Limits, requires the owner or operator to operate and maintain the gas turbine such that CO emissions must be less than 200 ppmvd @ 15% O₂. Rule 4703 does not include a specific averaging period requirement for demonstrating compliance with the CO emission limit. The District practice is to require CO emissions compliance demonstration on 3-hour rolling average period.

Each turbine is restricted to emit no more than 6 ppmvd CO @ 15% O₂ (even during the 90-day shakedown period and startup and shut down periods). Thus, compliance is expected with this section.

Section 5.3 – Transitional Operation Periods

NO_x and CO emission limits (listed above) shall not apply during a transitional operation period, which includes bypass transition period, primary re-ignition period, reduced load period, start-up or shutdown (each term is defined in Section 3.0 of Rule 4703), provided an operator shall meet the following conditions:

- The duration of each startup or each shutdown shall not exceed two hours.
- For each bypass transition period, the requirements specified in Section 3.2 shall be met.
- For each primary re-ignition period, the requirements specified in Section 3.20 shall be met¹.
- Each reduced load period shall not exceed one hour.

CDI is expected to complete each startup or shutdown within two hours. The following conditions will be placed on each permit:

Start-up shall not exceed 2.0 hours per event. [District Rule 4703] N

Shutdown shall not exceed 2.0 hours per event. [District Rule 4703] N

The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703] N

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] N

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] N

Section 6.2 - Monitoring and Recordkeeping

Section 6.2.1 requires the owner to operate and maintain continuous emissions monitoring equipment for NO_x and oxygen, or install and maintain APCO-approved alternate monitoring.

CDI has proposed monthly monitoring of NO_x, CO, and O₂ in the exhaust gas. Therefore, the requirements of this section have been satisfied.

The permittee shall monitor and record the stack concentration of NO_x (as NO₂), CO, and O₂ weekly. If compliance with NO_x and CO emission is demonstrated for eight (8) consecutive weeks, then the monitoring frequency shall 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, 4703 and 40 CFR part 64] N

Section 6.2.2 specifies monitoring requirements for turbines without exhaust-gas NO_x control devices. Each gas turbine will be equipped with an SCR system that is designed to control

NO_x emissions. Therefore, the requirements of this section are not applicable and no further discussion is required.

Section 6.2.3 requires that for units 10 MW and greater that operated an average of more than 4,000 hours per year over the last three years before August 18, 1994, the owner or operator shall monitor the exhaust gas NO_x emissions. The section is not applicable, as each turbine engine is new and rated less than 10 MW.

Section 6.2.4 requires the facility 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.

CDI will be required to maintain all records for at least five years and make them available to the APCO upon request.

Section 6.2.5 requires that the owner or operator shall submit to the APCO, before issuance of the Permit to Operate, information correlating the control system operating parameters to the associated measure NO_x output. This information may be used by the APCO to determine compliance when there is no continuous emission monitoring system for NO_x available or when the continuous emissions monitoring system is not operating properly. The following conditions will be placed on the permit:

Applicant has proposed to continuously monitor ammonia injection rate to the SCR. The acceptable range will be established during the startup source test.

Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NO_x and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rules 2201 and 4703, 40 CFR part 64, 40 CFR 60.4355]N

The owner or operator shall submit to the District information correlating the ammonia injection rate to the associated measured NO_x output. The information must be sufficient to allow the District to determine compliance with the NO_x emission limits of this permit when ammonia injection rate cannot be monitored. [District Rule 4703] N

Section 6.2.6 requires the owner or operator to 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, and the type and quantity of fuel used.

Section 6.2.7 requires the owner or operator shall maintain a stationary gas turbine system log for units exempt under Section 4.2 of this Rule. Chevron's gas turbine system is not exempt under Section 4.2 of this Rule. Therefore, no further discussion is required.

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

CDI will be required to maintain records of the items listed in above applicable sections. The following conditions will be placed on each permit:

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, total hours of operation, the type and quantity of fuel used, duration of each start-up and each shutdown time period. [District Rule 4703] N

Sections 6.3 and 6.4 - Compliance Testing

Section 6.3.1 states that the owner or operator of any stationary gas turbine system subject to the provisions of Section 5.0 of this rule shall provide source test information annually regarding the exhaust gas NO_x and CO concentrations.

CDI has requested initial source testing within 90 days of initial startup which is longer than the standard District practice of source testing within 60 days of initial startup. It has been CUSA's experience in previous projects authorizing SCR that a 60-day commissioning period isn't always sufficient and has resulted in the need to pursue variances to allow for more time. The District has approved the request as reflected in the following ATC condition:

Source testing to determine compliance with the NO_x, CO and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 90 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.4400]

Section 6.3.2 specifies source testing requirements for units operating less than 877 hours per year. As discussed above, each turbine system will be allowed to operate in excess of 877 hours per year. Therefore, the requirements of this section are not applicable and no further discussion is required.

Section 6.3.3 states that units with intermittently operated auxiliary burners shall demonstrate compliance with the auxiliary burner in both "on" and "off" configurations. The units will not be equipped with duct burners.

Section 6.4 states that the facility must demonstrate compliance annually with the NO_x and CO emission limits using the following test methods, unless otherwise approved by the APCO and EPA:

- Oxides of nitrogen emissions for compliance tests shall be determined by using EPA Method 7E or EPA Method 20.
- Carbon monoxide emissions for compliance tests shall be determined by using EPA Test Methods 10 or 10B.
- Oxygen content of the exhaust gas shall be determined by using EPA Methods 3, 3A, or 20.
- HHV and LHV of gaseous fuels shall be determined by using ASTM D3588-91, ASTM 1826-88, or ASTM 1945-81.

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

The following test methods shall be used: NO_x - 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; natural gas

fuel sulfur content: ASTM D3246; natural gas higher heating value (HHV): ASTM D3588-91, 1826-88, or 1945-81. 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)] N

Compliance is expected with this Rule.

Rule 4801 Sulfur Compounds

Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding a concentration of two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO₂) at the point of discharge on a dry basis averaged over 15 consecutive minutes.

Each affected unit will be fired on gaseous fuel with a sulfur content not exceeding 1 gr S/100 scf. Compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

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

40 CFR 64 Compliance Assurance Monitoring (CAM)

To be subject to CAM for a particular pollutant, an emissions unit must meet all of the following criteria:

Per 40 CFR Subpart 64, Section 64.1(a):

(a) General applicability. Except for backup utility units that are exempt under paragraph (b)(2) of this section, the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

- 1) The unit must have an emission limit for the pollutant;
- 2) The unit must have add-on controls for the pollutant– Catalytic oxidizers, baghouses, and flue gas recirculation are examples of add-on controls. Integral controls such as staged combustion or the use of low sulfur fuel would not be considered add-on controls; and
- 3) The pre-control potential to emit for the unit must exceed major source thresholds.

The source is a major source for NO_x, Requirements 1, 2, and 3 are applicable.

The pre-control potentials to emit for the engines are**

$$\begin{aligned} \text{NO}_x: & 0.32 \text{ lb NO}_x/\text{MMBtu}^* \times 64.47 \text{ MMBtu/hr} \times 4770 \text{ hr/yr} \times \text{ton}/2000 \text{ lb} \\ & = 49.2 \text{ tons/yr} \end{aligned}$$

*AP-42 uncontrolled NO_x for natural gas fired turbines Table 3.1.1 (4/00)

Therefore the units are subject to CAM for NO_x. CAM is not required for VOC and CO because they are not “add-on” controlled and PE is less than the major source thresholds for these air contaminants.

40 CFR part 64.3 requires that the operator monitor one or more parameters that indicate the performance of the control device. Applicant has proposed to monitor NO_x, CO, and O₂ concentrations on a monthly basis using a portable analyzer and to continuously monitor ammonia injection rate to the SCR. The acceptable range will be established during the startup source test.

The permittee shall monitor and record the stack concentration of NO_x (as NO₂), CO, and O₂ weekly. If compliance with NO_x and CO emission is demonstrated for eight (8) consecutive weeks, then the monitoring frequency shall 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, 4703 and 40 CFR Part 64] N

If the NO_x 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 NO_x 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 emission limits after eight (8) hour, 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 permitted emissions limits. 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 and 40 CFR part 64] N Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NO_x and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rule 2201, 40 CFR part 64, 40 CFR 60.4355]N

40 CFR part 64.3 also requires that variability be considered in establishing data collection frequency. For most units, at least some data must be collected once every 24 hours. For units with potential to emit in excess of major source thresholds after the control device, data must generally be collected every 15 minutes. Since the operation of the turbines is a steady-state continuous process with little variability and the units do not have a potential to emit after the control device in excess of the major source threshold, readings of ammonia injection rate are required to be taken at least once every 24 hours.

The following conditions are included on the current PTOs and proposed ATCs:

The permittee shall monitor and record the ammonia injection rate on a daily basis to assure the emission control system is functioning properly. Monitoring shall not be required if the gas turbine is not in operation, i.e. the gas turbine need not be started solely to perform monitoring. [40 CFR part 64] N

The approved ammonia injection rate operating range for monitoring daily compliance shall be established from manufacturer's information or by source testing this unit, and shall be stated on this permit. This operating range must be determined during the next source test or within six months, whichever comes first. [40 CFR part 64] N

40 CFR part 64.3 also requires corrective if the control efficiency of the catalyst is significantly reduced as indicated by ammonia injection rate out of the normal range. The following condition reflects this requirement:

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. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. 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, 40 CFR part 64, 40 CFR 60.4355] N

The following conditions address the operational requirements of 40 CFR part 64.7, the quality improvement requirements of part 64.8, and the record-keeping and reporting requirements of part 64.9.

The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR part 64] Y

The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR part 64] Y

If the District or EPA determine that a Quality Improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR part 64] Y

Compliance with CAM requirements are expected.

California Environmental Quality Act (CEQA)

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

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

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. 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. Issue Authority to Construct S-7063-8-5, '-9-5, '-18-2, '-19-0, and '-20-0 subject to the permit conditions on the attached draft Authority to Construct in **Attachment IX**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-7063-8	3020-02-H	63 MMBtu/hr	\$1030.00
S-7063-9	3020-02-H	63 MMBtu/hr	\$1030.00
S-7063-18	3020-08A-D	63 MMBtu/hr	\$1030.00
S-7063-19	3020-08A-D	5700 kW	\$3062.00
S-7063-20	3020-08A-D	5700 kW	\$3062.00

Attachments

- I: ATCs S-7063-8-3 and '-9-3 and PTOs S-7063-8-1, '-9-1, and '-18-0
- II: Manufacturer's Information of Gas Turbine
- III: Emissions Profiles
- IV: BACT Guideline
- V: BACT Analysis
- VI: District Policy APR 1430
- VII: AAQA and HRA
- VIII: Statewide Compliance Certification
- IX: Draft ATCs

Attachment I
ATCs S-7063-8-3 and '-9-3 and PTOs S-7063-8-1, '-9-1, and '-18-0

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-7063-8-1

EXPIRATION DATE: 02/28/2013

EQUIPMENT DESCRIPTION:

63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 8.3 ppmvd NOx @ 3% O2 or 0.010 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, and 4306]
7. 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]
8. 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]
9. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305 and 4306]
10. 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]
11. 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]
12. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305 and 4306]
13. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305 and 4306]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305 and 4306]
15. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
16. During the 36-month source testing interval, the owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306]
17. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306]
18. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. 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 week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305 and 4306]
19. The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rule 4305 and as approved by the District. The normal range/level shall be that for which compliance with applicable NOx and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305 and 4306]
20. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305 and 4306]
21. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, 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 new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305 and 4306]
22. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305 and 4306]
23. Permittee shall maintain daily records of the type and quantity of fuel combusted by the boiler. [District Rule 2201]
24. 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]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-7063-9-1

EXPIRATION DATE: 02/28/2013

EQUIPMENT DESCRIPTION:

63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 8.3 ppmvd NOx @ 3% O2 or 0.010 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, and 4306]
7. 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]
8. 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]
9. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305 and 4306]
10. 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]
11. 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]
12. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305 and 4306]
13. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305 and 4306]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305 and 4306]
15. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
16. During the 36-month source testing interval, the owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306]
17. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306]
18. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. 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 week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305 and 4306]
19. The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rule 4305 and as approved by the District. The normal range/level shall be that for which compliance with applicable NOx and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305 and 4306]
20. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305 and 4306]
21. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, 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 new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305 and 4306]
22. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305 and 4306]
23. Permittee shall maintain daily records of the type and quantity of fuel combusted by the boiler. [District Rule 2201]
24. 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]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-7063-18-0

EXPIRATION DATE: 02/28/2013

EQUIPMENT DESCRIPTION:

63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH A NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM.

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 5.0 ppmvd NOx @ 3% O2 or 0.0062 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
7. Except for those periods necessary to transition services from one boiler to another, conduct mandatory emissions testing, or testing during repairs, only two of the three boilers S-7063-8, -9, and -18 shall operate at any one time. [District Rule 2201 and CEQA]
8. Periods in which all three boilers S-7063-8, -9, and -18 are operating due to transitioning services from one boiler to another, conducting mandatory emissions testing, or testing during repairs shall not exceed 2 hours. [District Rules 2201 and 4320]
9. 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]
10. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
11. 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]
12. 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. NOx emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
13. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. CO emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 4305, 4306 and 4320]
15. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]
16. During the 36-month source testing interval, the owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306]
17. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306]
18. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. 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 week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306, and 4320]
19. The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rule 4305 and as approved by the District. The normal range/level shall be that for which compliance with applicable NOx and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305, 4306, and 4320]
20. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305, 4306, and 4320]
21. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, 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 new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]
22. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305, 4306, and 4320]
23. Permittee shall maintain records of periods in which all three boilers S-7063-8, -9, and -18 are operating due to transitioning services from one boiler to another, conducting mandatory emissions testing, or testing during repairs. [District Rules 1070 and 2201]
24. Permittee shall maintain daily records of the type and quantity of fuel combusted by the boiler. [District Rule 2201]
25. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]

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



AUTHORITY TO CONSTRUCT

PERMIT NO: S-7063-8-3

ISSUANCE DATE: 04/30/2010

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

EQUIPMENT DESCRIPTION:

MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: ADD SLC LIMITING OPERATION OF ONLY TWO OF THE THREE BOILERS S-7063-8, -9 AND -18 AT ANY ONE TIME

CONDITIONS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 7.0 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
7. Except for those periods necessary to transition services from one boiler to another, conduct mandatory emissions testing, or testing during repairs, only two of the three boilers S-7063-8, -9, and -18 shall operate at any one time. [District Rule 2201 and CEQA]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services

S-7063-8-3: Sep 26 2011 10:32AM - EDGEHILR : Joint Inspection NOT Required

8. Periods in which all three boilers S-7063-8, -9, and -18 are operating due to transitioning services from one boiler to another, conducting mandatory emissions testing, or testing during repairs shall not exceed 2 hours. [District Rules 2201 and 4320]
9. 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]
10. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
11. 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]
12. 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. NOx emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
13. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. CO emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
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CONDITIONS CONTINUE ON NEXT PAGE

21. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, 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 new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]
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25. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]
26. ATC shall be implemented concurrently with or subsequent to ATC S-7063-8-2. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-7063-9-3

ISSUANCE DATE: 04/30/2010

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
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Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services

S-7063-9-3; Sep 25 2011 10:32AM - EDGE:HLR : Joint Inspection NOT Required

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26. ATC shall be implemented concurrently with or subsequent to ATC S-7063-9-2. [District Rule 2201]

Attachment II
Manufacturer's Information of Gas Turbine

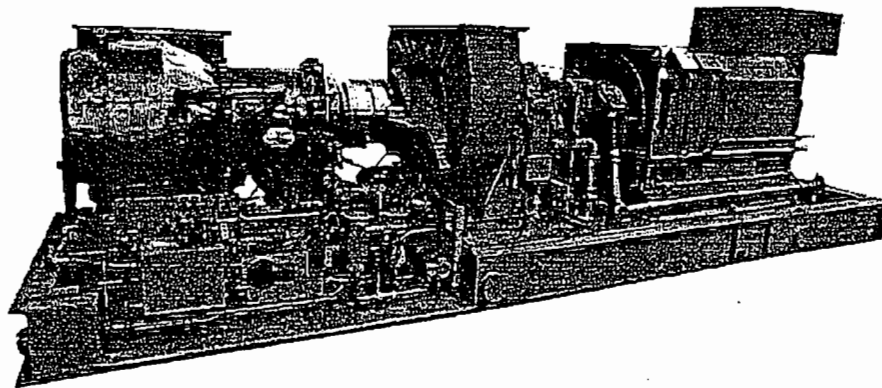
Solar Turbines

A Caterpillar Company

TAURUS 60

Gas Turbine Generator Set

Oil-Gas Application



General Specifications

Taurus™ 60 Gas Turbine

- Industrial, Single-Shaft
- Axial Compressor
 - 12 Stage
 - Variable Inlet Guide Vanes
 - Pressure Ratio: 12.2:1
 - Inlet Airflow:
 - 21.6 kg/sec (47.6 lb/sec)
 - Vertically Split Case
- Combustion Chamber
 - Annular Type
 - Conventional or Lean-Premixed, Dry, Low Emission (SoLoNOx™)
 - 12 Fuel Injectors
 - Torch Ignitor System
- Turbine
 - 3 Stage, Reaction
 - Max. Speed: 14,950
- Bearings
 - Journal: Tilting Pad
 - Thrust, Active: Tilting Pad
 - Thrust, Inactive: Fixed Tapered Land
- Vibration Transducer Type
 - Velocity
 - Proximity Probes

Main Reduction Drive

- Epicyclic Type
- 1500 or 1800 rpm
- Acceleration Vibration Transducer

Generator

- Salient Pole, 3 Phase, 6 Wire, Wye Connected, Synchronous, with PMG Exciter

- Construction Options
 - Open Drip Proof
 - Totally Enclosed Water or Air Cooled
- Sleeve Bearings
- Solid-State Voltage Regulation with Permanent Magnet Generator (Exciter)
- Insulation/Rise Option
 - NEMA Class F with B Rise
- Voltages: 3300 to 13,800 Volts
- Frequency: 50 or 60 Hz
- Vibration Transducer Type
 - Velocity
 - Proximity Probes

Key Package Features

- Base Frame with Drip Pans
- 316L Stainless Steel Piping
- Compression-Type Tube Fittings
- Digital Display Panel
- Electrical System Options
 - NEC Class I, Group D, Div. 1
 - CENELEC Zone 2
- Turbotronic™ 4 Control System
 - ControlLogix Processor
 - Onskid or Freestanding Control Console
 - Color Video Display
 - Gas Turbine and Package Temperature Monitoring
 - CGCM Module
 - Vibration Monitoring
 - Auto Synchronizing
 - Historical Displays

- Control Options
 - 120-VDC Control Battery/Charger
 - Serial Link Supervisory Interface
 - Turbine Performance Map
 - Printer/Logger
 - Field Programming
 - Predictive Emissions Monitoring
- Start Systems
 - Direct Drive AC
- Fuel Systems
 - Natural Gas
 - Dual (Gas/Liquid)
 - Electric Fuel Control
- Integrated Lube Oil System
 - Turbine-Driven Accessories
 - Tank Vent Separator
 - Flame Trap
 - Oil Cooler (Optional)
 - Oil Heater (Optional)
- Axial Compressor Cleaning Systems
 - On-Crank
 - On-Crank/On-Line (Optional)
 - Cleaning Tank
- Air Inlet and Exhaust System Options
- Enclosure and Associated Options
- Factory Testing of Turbine and Package
- Documentation
 - Drawings
 - Quality Control Data Book
 - Inspection and Test Plan
 - Test Reports
 - Operation and Maintenance Manuals

Solar Turbines

A Caterpillar Company

TAURUS 60

Gas Turbine Generator Set

Oil / Gas Applications

Performance

Output Power Continuous Duty	5670 kW _e
Heat Rate	11 430 kJ/kWe-hr (10,830 Btu/kWe-hr)
Exhaust Flow	78 385 kg/hr (172,810 lb/hr)
Exhaust Temp.	510°C (950°F)

Nominal Rating – ISO
At 15°C (59°F), sea level

No inlet/exhaust losses

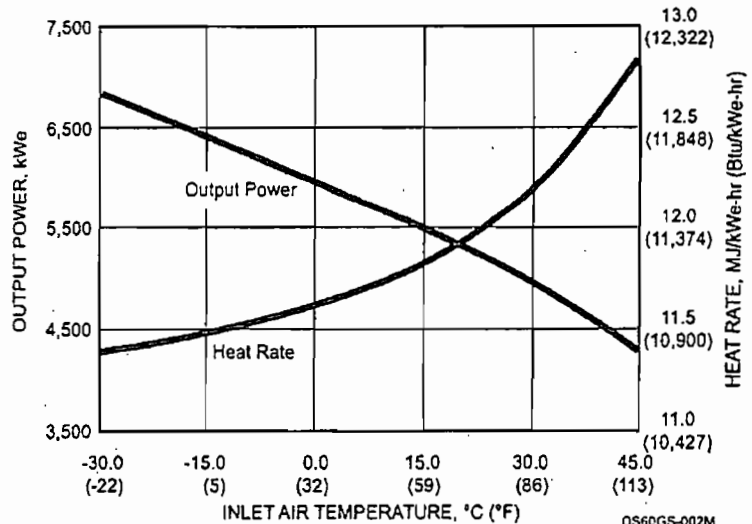
Relative humidity 60%

Natural gas fuel with
LHV = 35 MJ/nm³ (940 Btu/scf)

No accessory losses

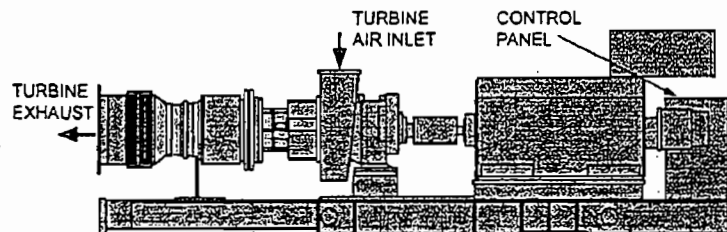
Engine efficiency: 31.5% (measured at
generator terminals)

Available Power



Package Dimensions

- Length: 9.8 m (32' 2")
- Width: 2.6 m (8' 6")
- Height: 3.2 m (10' 5")
- Typical Weight: 39 055 kg (87,160 lb)



DS60GS/5500-003M

Solar Turbines Incorporated
P.O. Box 85376
San Diego, CA 92186-5376

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DS60GS1106/EO

FOR MORE INFORMATION

Telephone: (+1) 619-544-5352
Internet: www.solarturbines.com



Table 2. Estimation of Start-up and Shutdown Emissions (lb/yr) for SoLoNOx Gas Fuel

Data will NOT be warranted under any circumstances.

		Centaur 40/4700S						Centaur 60/6200SII						Taurus 60/7800SII						Taurus 70/10300S					
		Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)	Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)	Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)	Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)
Start-up	Step 2 (3 min)	146,415	19.13	2.44	0.13	5.33	0.43	150,409	18.52	2.99	0.18	7.63	0.62	171,774	19.3	2.29	0.13	5.56	0.45	211,378	18.56	2.95	0.25	10.53	0.86
	Step 3 (6 min)	146,415	19.13	2.44	0.35	6.70	0.52	150,409	18.52	2.99	0.50	9.59	0.75	171,744	19.3	2.29	0.37	6.99	0.54	211,378	18.56	2.95	0.69	13.24	1.03
Total Start-up Emissions					0.5	12.0	1.0				0.7	17.2	1.4				0.5	12.5	1.0				0.9	23.8	1.9
Shut-down	Step 4 (90 sec)	147,718	15.46	5.70	0.11	0.13	0.04	151,411	14.35	6.68	0.13	0.16	0.05	173,937	14.33	6.70	0.15	0.19	0.05	213,837	14.32	6.70	0.19	0.23	0.07
	Step 3 (3.5 min)	146,415	19.13	2.44	0.20	3.91	0.30	150,409	18.52	2.99	0.29	5.60	0.44	171,744	19.3	2.29	0.21	4.08	0.32	211,378	18.56	2.95	0.98	18.76	1.46
Total Shut-down Emissions					0.3	4.0	0.3				0.4	5.8	0.5				0.4	4.3	0.4				1.2	19.0	1.5

		Mars 90/13000S						Mars 100/15000S						Titan 130/19500S					
		Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)	Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)	Exhaust Flowrate (lb/hr)	O2 %	H2O%	NOx (lbs)	CO (lbs)	UHC (lbs)
Start-up	Step 2 (3 min)	179,125	17.2	4.15	0.35	14.71	1.20	179,761	17.18	4.17	0.35	14.84	1.21	390,263	18.88	2.66	0.39	16.52	1.35
	Step 3 (6 min)	179,125	17.2	4.15	0.97	18.49	1.44	179,761	17.18	4.17	0.98	18.65	1.45	390,263	18.88	2.66	1.09	20.76	1.62
Total Start-up Emissions (lbs)					1.3	33.2	2.6				1.3	33.5	2.7				1.5	37.3	3.0
Shut-down	Step 4 (90 sec)	318,755	15.0	6.11	0.25	0.31	0.09	331,545	14.62	6.44	0.29	0.36	0.10	394,751	14.39	6.64	0.35	0.42	0.12
	Step 3 (8.5 min)	179,125	17.2	4.15	1.37	26.20	2.04	179,761	17.18	4.17	1.38	26.43	2.06	390,263	18.88	2.66	1.54	29.42	2.29
Total Shut-down Emissions (lbs)					1.6	26.5	2.1				1.7	26.8	2.2				1.9	29.8	2.4

Assumes ISO conditions: 59F, 60% RH, sea level, no losses
 Exhaust flowrates for Step 2 and 3 from FASTE @ 1% load using diffusion flame equivalent model; Mars 90 and 100 use 10% load diffusion flame data.
 Exhaust flowrates for Step 4 from FASTE @ 100% load using SoLoNOx models.
 Assumes unit is operating at full load prior to shut-down.
 Assumes gas fuel.

Attachment III
Emissions Profiles

Permit #: S-7063-8-5	Last Updated
Facility: CALIFORNIA DAIRIES, INC	09/30/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	363.0	129.0	345.0	1678.0	249.0
Daily Emis. Limit (lb/Day)	12.1	4.3	11.5	55.9	8.3
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-1013.0	-361.0	-962.0	-4685.0	-696.0
Q2:	-1013.0	-361.0	-962.0	-4685.0	-696.0
Q3:	-1013.0	-361.0	-962.0	-4686.0	-697.0
Q4:	-1013.0	-361.0	-963.0	-4686.0	-697.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-7063-9-5	Last Updated
Facility: CALIFORNIA DAIRIES, INC	09/30/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	363.0	129.0	345.0	1678.0	249.0
Daily Emis. Limit (lb/Day)	12.1	4.3	11.5	55.9	8.3
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-1013.0	-361.0	-962.0	-4685.0	-696.0
Q2:	-1013.0	-361.0	-962.0	-4685.0	-696.0
Q3:	-1013.0	-361.0	-962.0	-4586.0	-697.0
Q4:	-1013.0	-361.0	-963.0	-4686.0	-697.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-7063-18-2	Last Updated
Facility: CALIFORNIA DAIRIES, INC	09/30/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	281.0	129.0	345.0	1678.0	249.0
Daily Emis. Limit (lb/Day)	9.4	4.3	11.5	55.9	8.3
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-7063-19-0	Last Updated
Facility: CALIFORNIA DAIRIES, INC	01/20/2012 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	4382.0	1242.0	9152.0	12059.0	1601.0
Daily Emis. Limit (lb/Day)	17.1	4.4	32.5	71.1	8.1
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1095.0	310.0	2288.0	3014.0	400.0
Q2:	1095.0	310.0	2288.0	3015.0	400.0
Q3:	1096.0	311.0	2288.0	3015.0	400.0
Q4:	1096.0	311.0	2288.0	3015.0	401.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		
Quarterly Offset Amounts (lb/Qtr)					
Q1:	124.0		1989.0		
Q2:	124.0		1989.0		
Q3:	124.0		1989.0		
Q4:	124.0		1989.0		

Permit #: S-7063-20-0	Last Updated
Facility: CALIFORNIA DAIRIES, INC	01/20/2012 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	4381.0	1242.0	9152.0	12059.0	1601.0
Daily Emis. Limit (lb/Day)	17.1	4.4	32.5	71.5	8.1
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1095.0	310.0	2288.0	3014.0	400.0
Q2:	1095.0	310.0	2288.0	3015.0	400.0
Q3:	1095.0	311.0	2288.0	3015.0	400.0
Q4:	1096.0	311.0	2288.0	3015.0	401.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		
Quarterly Offset Amounts (lb/Qtr)					
Q1:	124.0		1989.0		
Q2:	124.0		1989.0		
Q3:	124.0		1989.0		
Q4:	124.0		1989.0		

Attachment IV
BACT Guideline

**San Joaquin Valley
Unified Air Pollution Control District**

**Best Available Control Technology (BACT) Guideline 3.4.3
Last Update: October 1, 2002**

**Emissions Unit: Gas Turbine - > 3 MW and < 10 MW, Uniform Load,
with Heat Recovery**

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	2.0 ppmv @ 15% O ₂ , based on a three-hour rolling average (Catalytic Oxidation or equal)		
NO _x	2.5 ppmv @ 15% O ₂ , based on a three-hour rolling average (Selective Catalytic Reduction or equal)		
CO	6.0 ppmv @ 15% O ₂ , based on a three-hour rolling average (Catalytic Oxidation or equal)		
PM ₁₀	Air Inlet Cooler, Lube Oil Vent Coalescer, and Natural Gas Fuel.		

1. Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM₁₀ emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement.
2. A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

Attachment V
BACT Analysis

BACT Analysis

BACT Analysis for NO_x Emissions:

a. Step 1 - Identify All Possible NO_x Control Technologies

The SJVUAPCD BACT Clearinghouse identifies achieved-in-practice BACT for this turbine as 2.5 ppmv @15% O₂, based on a three-hour rolling average (Selective Catalytic Reduction or equal). No technologically infeasible alternatives are listed.

b. Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options listed.

c. Step 3 - Rank Remaining Control Technologies by Control Effectiveness

2.5 ppmv @15% O₂, based on a three-hour rolling average (Selective Catalytic Reduction or equal).

d. Step 4 - Cost Effectiveness Analysis

The only control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

Therefore, BACT for NO_x emissions is 2.5 ppmv @15% O₂, based on a three-hour rolling average (Selective Catalytic Reduction or equal).

BACT Analysis for PM₁₀ Emissions:

a. Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse identifies achieved-in-practice BACT for this turbine as an Air Inlet Cooler, Lube Oil Vent Coalescer, and Natural Gas Fuel.

b. Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

c. Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Air Inlet Cooler, Lube Oil Vent Coalescer, and Natural Gas Fuel.

d. Step 4 - Cost Effectiveness Analysis

The only control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for PM₁₀ emissions for this turbine is an air inlet cooler, lube oil vent coalescer, and natural gas fuel..

BACT Analysis for VOC Emissions:

a. Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse identifies achieved-in-practice BACT for this turbine as 2.0 ppmv @ 15% O₂, based on a three-hour rolling average (Catalytic Oxidation or equal).

b. Step 2 - Eliminate Technologically Infeasible Options

2.0 ppmv @ 15% O₂, based on a three-hour rolling average (Catalytic Oxidation or equal) is technologically feasible

c. Step 3 - Rank Remaining Control Technologies by Control Effectiveness

2.0 ppmv @ 15% O₂, based on a three-hour rolling average (Catalytic Oxidation or equal)

d. Step 4 - Cost Effectiveness Analysis

Since the technology listed above is achieved-in-practice BACT, a cost effectiveness analysis is not required.

e. Step 5 – Select BACT

BACT for VOC emissions for this turbine is 2.0 ppmv @ 15% O₂, based on a three-hour rolling average (Catalytic Oxidation or equal).

California Dairies Inc
S7063, 1111009

Attachment VI
APR 1430

Interpollutant Offset Ratio Explanation

The Air District's Rule 2201, "New and Modified Source Review", requires facilities to supply "emissions offsets" when a permittee requests new or modified permits that allow emissions of air contaminants above certain annual emission offset thresholds. In addition, Rule 2201 allows interpollutant trading of offsets amongst criteria pollutants and their precursors upon the appropriate scientific demonstration of an adequate trading ratio, herein referred to as the interpollutant ratio. A technical analysis is required to determine the interpollutant offset ratio that is justified by evaluation of atmospheric chemistry. This evaluation has been conducted using the most recent modeling analysis available for the San Joaquin Valley. The results of the analysis are designed to be protective of health for the entire Valley for the entire year, by applying the most stringent interpollutant ratio throughout the Valley.

It is appropriate for District particulate offset requirements to be achieved by either a reduction of directly emitted particulate or by reduction of the gases, called particulate precursors, which become particulates from chemical and physical processes in the atmosphere. The District interpollutant offset relationship quantifies precursor gas reductions sufficient to serve as a substitute for a required direct particulate emissions reduction. Emission control measures that reduce gas precursor emissions at the facility may be used to provide the offset reductions. Alternatively, emission credits for precursor reductions may be used in accordance with District regulations.

The amount of particulate formed by the gaseous emissions must be evaluated to determine how much credit should be given for the gaseous reductions. Gases combine and merge with other material adding molecular weight when forming into particles. Some of the gases do not become particulate matter and remain a gas. Both the extent of conversion into particles and resulting weight of the particles are considered to establish mass equivalency between direct particulate emissions and particulate formed from gas precursors. The Interpollutant offset ratio is expressed as a per-ton equivalency.

The District interpollutant analysis uses the most recent and comprehensive modeling of San Joaquin Valley particulate formation from sulfur oxides (SO_x) and nitrogen oxides (NO_x). Modeling compares industrial directly emitted particulate to particulate matter from precursor emissions. The interpollutant modeling procedure, assumptions and uncertainties are documented in an extensive analysis file. Additional documentation of the modeling procedure for the San Joaquin Valley is contained in the 2008 PM_{2.5} Plan and its appendices. The 2008 PM_{2.5} Plan provides evaluation of the atmospheric relationships for direct particulate emissions and precursor gases when they are highest during the fourth quarter of the year. The southern portion of the Valley is evaluated by both receptor modeling and regional modeling of chemical relationships for precursor particulate formation. Regional modeling was conducted for the entire Valley through 2014. The two modeling approaches are combined to determine interpollutant offset ratios applicable to, and protective of, the entire Valley (SO_x for PM 1:1 and NO_x for PM 2.629:1).

DEVELOPMENT OF THE INTERPOLLUTANT RATIO

For the proposed substitution of reductions of sulfur oxides (SO_x)
or nitrogen oxides (NO_x) for directly emitted particulate matter

March 2009

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DEVELOPMENT OF THE INTERPOLLUTANT RATIO

Introduction

Goal of Interpollutant Evaluation: Establish the atmospheric exchange relationship for substitution of alternative pollutant or precursor reductions for required reductions of directly emitted particulate

Evaluation to establish the atmospheric relationship of different pollutants is required as a prerequisite for establishing procedures for allowing a required reduction to be met by substitution of a reduction of a different pollutant or pollutant precursor. Proposed new facility construction or facility modifications may result in increased emissions of a pollutant. The District establishes requirements for reductions of the pollutant to "offset" the proposed increase. A facility may propose a reduction of an alternative pollutant or pollutant precursor where reductions of that material have already been achieved at the facility beyond the amount required by District regulations or where emission reductions credits for reductions achieved by other facilities are economically available; however, for such a substitution to be allowed the District must establish equivalency standards for the substitution. The equivalency relationship used for offset requirements is referred to in this discussion as the interpollutant ratio. The interpollutant ratio is a mathematical formula expressing the amount of alternative pollutant or precursor reduction required to be substituted for the required regulatory reduction. This discussion is limited to the atmospheric relationships and does not address other policy or regulatory requirements for offsets such as are contained in District Rule 2201.

The following description is provided to explain key elements of the analysis conducted to develop the atmospheric relationship between the commonly requested substitutions. Emission reductions of sulfur oxide emissions or nitrogen oxide emissions are proposed by many facilities as a substitution for reduction of directly emitted particulates. Elemental and organic carbon emissions are the predominant case and dominant contribution to directly emitted particulate mass from industrial facilities, although other types of directly emitted particulates do occur. Therefore this atmospheric analysis examines directly emitted carbon particulates from industrial sources in comparison to the formation of particles from gaseous emissions of sulfur oxides and nitrogen oxides.

Analyses included in Interpollutant evaluation

Factors Considered

The foundation for this analysis is provided by the atmospheric modeling conducted for the 2008 PM_{2.5} Plan. Modeling conducted for this State Implementation Plan was conducted by the District and the California Air Resources Board using a variety of modeling approaches. Each separate model has technical limitations and uncertainties. To reduce the uncertainty of findings, a combined evaluation of results of all of the modeling methods is used to establish "weight of evidence" support for technical analysis and conclusions. The modeling methods are supported by a modeling protocol which was sent to ARB and EPA Region IX for review and was included in the appendices to the Plan.

The analysis file prepared for the interpollutant ratio evaluation includes emissions inventories, regional model daily output files, chemical mass balance modeling and speciated rollback modeling as produced for the 2008 PM_{2.5} Plan. This well examined and documented modeling information was used as a starting point for additional evaluation to determine interrelationships between directly emitted pollutants and particulates from precursors.

The interpollutant ratio analysis is limited to evaluation of directly emitted PM_{2.5} from industrial sources and formation of PM_{2.5} from precursor gases. While both directly emitted particulates and particulate from precursor gases also occur in the PM₁₀ size range, there is much more uncertainty associated with deposition rates and particle formation rates for the larger size ranges. Additionally, because PM_{2.5} is a subset of PM₁₀; all reductions of PM_{2.5} are fully creditable as reductions towards PM₁₀ requirements. This analysis concentrates on the quarter of the year when both directly emitted carbon from industrial sources and secondary particulates are measured at the highest levels. Assessing atmospheric ratios at low concentrations is subject to much greater uncertainty and has limited value toward assessment of actions to comply with the air quality standards.

Elements from 2008 PM 2.5 Plan

- Regional modeling daily output for eleven locations
- Chemical Mass Balance (CMB) modeling for four locations – source analysis, speciation profile selection, event meteorology evaluation
- Receptor speciated rollback modeling with adjustment for nitrate nonlinearity for four locations; evaluation of spatial extent of contributing sources
- Emission inventories and projections to future years as developed for the 2008 PM 2.5 Plan

DEVELOPMENT OF THE INTERPOLLUTANT RATIO

- Modeling protocols for receptor modeling, regional modeling, and Positive matrix Factorization (PMF) analysis and evaluation of technical issues applicable to particulate formation in the San Joaquin Valley
- Model performance analysis as documented in appendices to the 2008 PM 2.5 Plan

Extension by additional analysis

Additional evaluation was conducted to evaluate the receptor modeling relationship between direct PM from industrial sources and sulfate and nitrate particulate formed from SO_x and NO_x precursor gases. Area of influence adjustments were evaluated to ensure appropriate consideration of contributing source area for different types of pollutants for both directly emitted and secondary particulate. This evaluation was possible only for the southern four Valley counties and was conducted for both 2000 and 2009.

The regional model output was evaluated for the fourth quarter to evaluate general atmospheric chemistry in 2005 and 2014 to determine the correlation between northern and southern areas of the Valley. This evaluation determined that the atmospheric chemistry observed and modeled in the north was within the range of values observed and modeled in the southern SJV. This establishes that a ratio protective of the southern Valley will also be protective in the north.

The District determined from the additional analyses of both receptor and regional modeling that the most stringent ratio determined for the southern portion of the Valley would also be protective of the northern portion of the Valley. Due to the regional nature of these pollutants, actions taken in other counties must be assumed to have at least some influence on other counties; therefore to achieve attainment at the earliest practical date it is appropriate to require all counties to establish a consistent interpollutant ratio for the entire District.

Strengths

The interpollutant ratio analysis uses established and heavily reviewed modeling and outputs as foundation data. Analysis of model performance has already been completed for the models and for the emissions inventories used for this analysis. The modeling was performed in accordance with protocols developed by the District and ARB and in accordance with modeling guidelines established by EPA. The combination of modeling approaches provides an analysis for the current year and provides projection to 2014. Weight of evidence comparison of various modeling approaches establishes the reliability of the foundation modeling, with all modeling approaches showing strong agreement in predicted results. Additional analysis performed to develop the interpollutant ratio uses both regional and receptor evaluations which were the primary models used for the 2008 PM 2.5 Plan.

DEVELOPMENT OF THE INTERPOLLUTANT RATIO

Limitations

Both industrial direct emissions and secondary formed particulate may be both PM_{2.5} and PM₁₀. The majority of secondary particulates formed from precursor gases are in the PM_{2.5} range as are most combustion emissions from industrial stacks, however both secondary and stack emissions do contain particles larger than PM_{2.5}. Regional modeling is more reliable for the smaller fraction due to travel distances and deposition rates. Large particles have much higher deposition and are much more difficult to replicate with a regional model. This leads to a strong technical preference for evaluating both emission types in terms of PM_{2.5} because the integration of receptor analysis and regional modeling for coarse particle size range up to PM₁₀ has a much greater associated uncertainty.

Analyses contained in Receptor modeling

Factors Considered

This modeling approach uses speciated linear modeling based on chemical mass balance evaluation of contributing sources with San Joaquin Valley specific identification of contributing source profiles, adjustments from regional modeling for the nonlinearity of nitrate formation, adjustments for area of influence impacts of contributing sources developed from back trajectory analysis of high concentration particulate episodes and projections of future emission inventories as developed for the 2008 PM2.5 Plan.

Analyses in receptor modeling that use input from regional modeling

The receptor modeling analysis uses a modified projection of nitrate particulate formation from nitrogen oxides based upon results of regional modeling. The atmospheric chemistry associated with nitrate particulate formation has been determined to be nonlinear; while the default procedures for speciated rollback modeling assume a linear relationship. This adjustment has been demonstrated as effective in producing reliable atmospheric projections for the prior PM10 Plans.

Extension by additional analysis

Additional evaluations were added to results of the receptor modeling performed for the 2008 PM2.5 Plan. Calculations determine the observed micrograms per ton of emission for each contributing source category that can be resolved by chemical mass balance modeling methods. These ten categories allow differentiation of industrial direct emissions of organic and elemental carbon from other sources that emit elemental and organic carbon. The interpollutant calculation is developed as an addition to the receptor analysis by calculating the ratio of emissions per ton of directly emitted industrial PM2.5 to the per ton ratio of secondary particulate formed from NOx and SOx emissions. Summary tables and issue and documentation discussion was added to the analysis.

Strengths

Receptor modeling provides the ability to separately project the effect of different key sources contributing to carbon and organic carbon. This is critical for establishing the atmospheric relationship between industrial emissions and the observed concentrations due to industrial emissions. Regional modeling methods at this time do not support differentiation of vegetative and motor vehicle carbon contribution from the emissions from industrial sources. The area of influence of contributing sources was also considered as a factor with the methods developed by the District to incorporate the gridded footprint of contributing sources into the receptor analysis. While regional

DEVELOPMENT OF THE INTERPOLLUTANT RATIO

models use gridded emissions, current regional modeling methods do not reveal the resulting area of influence of contributing sources.

Limitations

Receptor modeling uses linear projections for future years and cannot account for equilibrium limitations that would occur if a key reaction became limited by reduced availability of a critical precursor due to emission reductions. The regional model was used to investigate this concern and did not project any unexpected changes due to precursor limitations.

Analyses contained in Regional modeling

Factors Considered

The analysis file includes the daily modeling output representing modeled values for the base year 2005 and predicted values for 2014 for each of the eleven Valley sites that have monitoring data for evaluation of the models performance in predicting observed conditions. These sites are located in seven of the eight Valley counties. Madera County does not have monitoring site data for this comparison.

Modeling data for all quarters of the year was provided. Due to the higher values that occur due to stagnation events in the fourth quarter, both industrial carbon concentrations and secondary particulates forming from gases are highest in the fourth quarter. Evaluating the interpollutant ratio for other quarters would be less reliable and of less significance to assisting in the reduction of high particulate concentrations. Modeling for lower values has higher uncertainty. Modeling atmospheric ratios when the air quality standard is being met are axiomatically not of value to determining offset requirements intended to assist in achieving compliance with the air quality standard. However, for consistency of analysis between sites, days when the standard was being met during the fourth quarter were not excluded from the interpollutant ratio analysis. Bakersfield fourth quarter modeled data included only eight days that were at or below the standard. Fresno and Visalia sites averaged twelve days; northern sites 24 days and the County of Kings 38 days.

Modeling output provided data for both 2005 and 2014. While there is substantial emissions change projected for this period, the regional modeling evaluation does not project much change in the atmospheric ratios of directly emitted pollutants and secondary pollutants from precursor gases. This indicates that the equilibrium processes are not expected to encounter dramatic change due to limitation of reactions by scarcity of one of the reactants. This further justifies using the receptor evaluation determining the interpollutant ratio for 2009 through the year 2014 without further adjustment. If observed air quality data demonstrates a radical shift in chemistry or components during the next few years, such a change could indicate that a limiting reaction has been reached that was not projected by the model and such radical changes might require reassessment of the conclusion that the ratio should remain unchanged through 2014.

Extension by additional analysis

Regional modeling results prepared for the 2008 PM2.5 Plan were analyzed to extract fourth quarter data for all sites. The atmospheric chemistry for all counties was analyzed for consistency and variation. This analysis provided a determination that the secondary formation chemistry and component sources contributing to concentrations observed in the north fell within the range of values similarly determined for the southern four counties. Based upon examination of the components and chemistry, the

DEVELOPMENT OF THE INTERPOLLUTANT RATIO

northern counties would be expected to have an interpollutant ratio value less than the ratio determined for Kern County but greater than the one for Tulare County. This establishes that the interpollutant ratio determined by receptor analysis of the southern four counties provides a value that is also sufficiently protective for the north.

Strengths

Regional models provide equilibrium based evaluations of particulate formed from precursor gases and provide a regional assessment that covers the entire Valley. The projection of particulate formed in future years is more reliable than linear methods used for receptor modeling projections.

Limitations

The regional model does not provide an ability to focus on industrial organic carbon emissions separate from other carbon sources such as motor vehicles, residential wood smoke, cooking and vegetative burning. Regional modeling does not provide an assessment method for determination of sources contributing at each site or the area of influence of contributing emissions. Receptor analysis provides a more focused tool for this aspect of the evaluation.

Results and Documentation

SJVAPCD Interpollutant Ratio Results

SOx for PM ratio: 1.000 ton of SOx per ton of PM

NOx for PM ratio: 2.629 tons of NOx per ton of PM

These ratios do not include adjustments for other regulatory requirements specified in provisions of District Rule 2201.

The results of the modeling analysis developed an atmospheric interpollutant ratio for NOx to PM of 2.629 tons of NOx per ton of PM. This result was the most stringent ratio from the assessment industrial carbon emissions to secondary particulates at Kern County; with Fresno, Tulare and Kings counties having a lower ratio. The assessment of chemistry from the regional model required comparison of total carbon to secondary particulates and is therefore not directly useful to establish a ratio. However, the regional model does provide an ability to compare the general atmospheric similarity and compare changes in chemistry due to Plan reductions. Evaluation revealed that the atmospheric chemistry of San Joaquin, Stanislaus and Merced counties falls within the range of urban characteristics evaluated for the southern four counties; therefore the ratio established should be sufficiently protective of the northern four counties. Additionally, comparison of future year chemistry showed minimal change in pollutant ratio due to the projected changes in the emission inventory from implementation of the Plan. The SOx ratio as modeled indicates a value of less than one to one due to the increase in mass for conversion of SOx to a particulate by combination with other atmospheric compounds; however, the District has set guidelines that require at least one ton of an alternative pollutant for each required ton of reduction in accordance with District Rule 2201 Section 4.13.3. Therefore the SOx interpollutant ratio is established as 1.000 ton of SOx per ton of PM. These ratios do not include adjustments for other regulatory considerations, such as other provisions of District Rule 2201.

A guide to the key technical topics and the reference material relevant to that topic is found on the next page. References from the 2008 PM2.5 Plan may be obtained by requesting a copy of that document and its appendices or by downloading the document from http://www.valleyair.org/Air_Quality_Plans/AQ_Final_Adopted_PM25_2008.htm. References in *italics* are spreadsheets included in the interpollutant analysis file "09 Interpollutant Ratio Final 032909.xls" which includes 36 worksheets of receptor modeling information from the 2008 PM2.5 Plan, 11 modified and additional spreadsheets for this analysis and two spreadsheets of regional model daily output. This file is generally formatted for printing with the exception of the two spreadsheets containing the regional model output "*Model-Daily Annual*" and "*Model-Daily Q4*" which are over 300 pages of raw unformatted model output files. The remainder of the file is formatted to print at approximately 100 pages. This file will be made available on request but is not currently posted for download.

DEVELOPMENT OF THE INTERPOLLUTANT RATIO

Interpollutant Ratio Issues & Documentation

TOPIC	Reference
<p>1 Reason for using PM2.5 for establishing the substitution relationship between direct emitted carbon PM and secondary nitrate and sulfate PM: consistency of relationship between secondary particulates and industrial direct carbon combustion emissions.</p>	<p>2008 PM2.5 Plan, Sections 3.3.2 through 3.4.2</p>
<p>2 Reason for using 4th Quarter analysis: Highest PM2.5 for all sites.</p>	<p><i>DV Qtrs</i></p>
<p>3 Reason for using analysis of southern SJV sites to apply to regional interpollutant ratio: Northern site chemistry ratios are within the range of southern SJV ratios. Peak ratio will be protective for all SJV counties.</p>	<p><i>Q4 Model Pivot, Model-site chem, Model-Daily Q4</i></p>
<p>4 Reason for using combined results of receptor and regional model: Receptor model provides breakdown of different carbon sources to isolate connection between industrial emissions and secondary PM. Regional model provides atmospheric information concerning the northern SJV not available from receptor analysis.</p>	<p>2008 PM2.5 Plan, Apperidix F 2008 PM2.5 Plan, Appendix G</p>
<p>5 Most significant contributions of receptor evaluation: Separation of industrial emissions from other source types. Area of influence evaluation for contributing sources.</p>	<p>2008 PM2.5 Plan, Appendix F</p>
<p>6 Most significant contributions of regional model: Scientific equilibrium methods for atmospheric chemistry projections for 2014. Receptor technique is limited to linear methods.</p>	<p>2008 PM2.5 Plan, Appendix G</p>
<p>7 Common area of influence adjustments used for all receptor evaluations: Geologic & Construction, Tire and Brake Wear, Vegetative Burning - contribution extends from more than just the urban area (L2) Mobile exhaust (primary), Organic Carbon (Industrial) primary, Unassigned - contribution extends from more than larger area, subregional (L3) Secondary particulates from carbon sources are dominated by the local area with some contribution from the surrounding area (average of L1 and L2) Marine emissions not found present in CMB modeling for this analysis.</p>	<p>Modeling evaluation by J. W. Sweet February 2009 Reflected in <u>IPR County 2000-2009</u> worksheets</p>
<p>8 Variations to reflect secondary area of influence specific to location: Fresno: Evaluation shows extremely strong urban signature (L1) for secondary sources Kern: Evaluation shows a strong urban signature mixed with emissions from the surrounding industrial areas (average L1 and L2) for both carbon and secondary sources Kings and Tulare: Prior evaluation has show a shared metropolitan contribution area (L2)</p>	<p>Modeling evaluation by J. W. Sweet February 2009 Reflected in <u>IPR County 2000-2009</u> worksheets</p>
<p>9 Reasons for using 2009 Interpollutant Ratio Projection: 2009 Interpollutant ratio is consistent with current emissions inventories Regional modeling does not show a significant change in chemical relationships through 2014.</p>	<p>2008 PM2.5 Plan <i>Q4 Model Pivot</i></p>
<p>10 Reason for using SOx Interpollutant Ratio at 1.000: A minimum offset ratio is established as 1.000 to 1.000 consistent with prior District policy and procedure for interpollutant offsets.</p>	<p>District Rule 2201 Section 4.13.3</p>

Attachment VII
AAQA and HRA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Richard Edgehill– Permit Services
 From: Leland Villalvazo– Technical Services
 Date: June 18, 2011
 Facility Name: California Dairies
 Location: 2000 N. Plaza Drive
 Application #(s): S-7063-19-2 & 20-2
 Project #: S-1111009

I. RMR SUMMARY

RMR Summary				
Categories	Type of Unit (Unit 19-2)	Type of Unit (Unit 20-2)	Project Totals	Facility Totals
Prioritization Score	0.01	0.01	0.02	>1.0
Acute Hazard Index	0.00	0.00	0.00	0.00
Chronic Hazard Index	0.00	0.00	0.00	0.00
Maximum Individual Cancer Risk (10^{-6})	0.00	0.00	0.00	0.67
T-BACT Required?	No	No		
Special Permit Conditions?	No	No		

Proposed Permit Conditions

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

Unit # 19-2 & 20-2

No special conditions are required.

II. Analysis

Technical Services performed modeling for criteria pollutants CO, NOx, SOx and PM₁₀; as well as a RMR. The emission rates used for criteria pollutant modeling were 0.862 lb/hr CO, 0.60 lb/hr NOx, 0.184 lb/hr SOx, 1.35 lb/hr PM₁₀ and 1.33 lb/hr PM_{2.5}. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass	Pass
PM _{2.5}	X	X	X	Pass ²	Pass ²

*Results were taken from the attached PSD spreadsheet.

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

²The criteria pollutants are below EPA's interim level of significance of 1.2 (24 hour) and 0.3 (annual). Since this facility is not a significant PM_{2.5} source (100 tons) only the primary PM_{2.5} emissions were evaluated.

Analysis Parameters Unit 19-2 & 20-2			
Source Type	Point	Location Type	Urban
Stack Height (m)	15.24	Closest Receptor (m)	304.8
Stack Diameter. (m)	1.829	Type of Receptor	Residential / Business
Stack Exit Velocity (m/s)	19.56816	Max Hours per Year	8760
Stack Exit Temp. (°K)	788.706	Fuel Type	NG
Burner Rating (MMBtu/hr)	64.5		

III. Conclusion

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

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

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

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

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score
- E. Facility Summary

Attachment VIII
Statewide Compliance Certification



Sept. 28, 2011

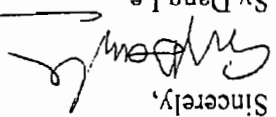
Permit Services
San Joaquin Valley Air Pollution Control District
34946 Flyover Court
Bakersfield, CA 93308

Re: California Dairies, Inc. Statewide Compliance Statement

Dear Permit Services:

WZI Inc. has prepared an ATC application for California Dairies, Incorporated milk processing facility located in Visalia, CA. The application is to construct two natural gas-fired cogeneration turbines.
This letter is to certify that to the best of my knowledge, all major Stationary Sources owned or operated by California Dairies, Inc. in California which are subject to emission limitations are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

Should you have any questions please contact me at (559) 233-5154 ext. 119 or Richard Wilson of WZI Inc. at (661)-326-1112.

Sincerely,

Sy Dang Le
Director of Environmental Compliance
California Dairies, Inc.

cc: Richard Wilson, WZI Inc.

ATTACHMENTS

ARTESIA
11709 E. Artesia Blvd
P.O. Box 8210
Artesia, CA 90701
Telephone: 562-865-1291
Fax: 562-880-8633

FRESNO
755 F Street
P.O. Box 11865
Fresno, CA 93775-1865
Telephone: 559-233-5154
Fax: 559-268-5101

LOS BANOS
1155 Pacheco Avenue
P.O. Box 2198
Los Banos, CA 93635-2198
Telephone: 209-826-4901
Fax: 209-826-6717

TIPTON
11884 Avenue 120
P.O. Box 837
Tipton, CA 93272-0837
Telephone: 559-752-5200
Fax: 559-752-5201

TURLOCK
475 South Tegner Road
Turlock, CA 95380
Telephone: 209-668-6150
Fax: 209-668-8162

CORPORATE OFFICE
VISALIA
2000 N. Plaza Drive
Visalia, CA 93291
Telephone: 559-625-2200
Fax: 559-625-5433

Attachment IX
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-7063-8-5

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

EQUIPMENT DESCRIPTION:

MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM. LIMIT COMBINED USE OF '-8, '-9 AND '-18 TO 90,720 MMBTU/YR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {2964} The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 7.0 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
7. Combined fuel use for boilers S-7063-8, '-9, and '-18 shall not exceed 90,720 MMBtu/yr. [District Rule 2201]
8. 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]
9. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

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-7063-8-5: Jan 25 2012 2:48PM - EDGEHLR : Joint Inspection NOT Required

10. {3466} Source testing to measure NO_x 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]
11. NO_x 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. NO_x emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
12. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. CO emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
13. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 4305, 4306 and 4320]
14. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]
15. During the 36-month source testing interval, the owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306]
16. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306]
17. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. 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 week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306, and 4320]
18. The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rule 4305 and as approved by the District. The normal range/level shall be that for which compliance with applicable NO_x and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305, 4306, and 4320]
19. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305, 4306, and 4320]
20. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, 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 new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

21. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305, 4306, and 4320]
22. Permittee shall maintain daily records of the type and quantity of fuel combusted by the boiler. [District Rule 2201]
23. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]
24. ATCs S-7063-8-5, '-9-5, and '-18-2 shall be implemented within 90 days of startup of turbines S-7063-19 and '-20. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-7063-9-5

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

EQUIPMENT DESCRIPTION:
MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH AN NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM: LIMIT COMBINED USE OF '-8, '-9 AND '-18 TO 90,720 MMBTU/YR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {2964} The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 7.0 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
7. Combined fuel use for boilers S-7063-8, '-9, and '-18 shall not exceed 90,720 MMBtu/yr. [District Rule 2201]
8. 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]
9. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

S-7063-9-5 : Jan 25 2012 2:46PM - EDGEHILL : Joint Inspection NOT Required

10. {3466} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305 and 4306]
11. 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. NOx emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
12. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. CO emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
13. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 4305, 4306 and 4320]
14. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]
15. During the 36-month source testing interval, the owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306]
16. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306]
17. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. 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 week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306, and 4320]
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19. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305, 4306, and 4320]
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CONDITIONS CONTINUE ON NEXT PAGE

21. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305, 4306, and 4320]
22. Permittee shall maintain daily records of the type and quantity of fuel combusted by the boiler. [District Rule 2201]
23. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]
24. ATCs S-7063-8-5, '-9-5, and '-18-2 shall be implemented within 90 days of startup of turbines S-7063-19 and '-20. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-7063-18-2

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

EQUIPMENT DESCRIPTION:

MODIFICATION OF 63 MMBTU/HR HURST SERIES 400 NATURAL GAS FIRED BOILER WITH A NOVA PLUS ULTRA LOW NOX COMBUSTION SYSTEM MODEL NVC17-G-40 ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) SYSTEM. LIMIT COMBINED USE OF '-8, '-9 AND '-18 TO 90,720 MMBTU/YR

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3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {2964} The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201]
6. Emissions from the natural gas-fired unit shall not exceed any of the following limits: 5.0 ppmvd NOx @ 3% O2 or 0.0062 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 50 ppmvd CO @ 3% O2 or 0.037 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
7. Combined fuel use for boilers S-7063-8, '-9, and '-18 shall not exceed 90,720 MMBtu/yr. [District Rule 2201]
8. 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]
9. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services.

S-7063-18-2 : Jan 23 2012 2:46PM - EDGEHILL : Joint Inspection NOT Required

10. {3466} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305 and 4306]
11. 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. NOx emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
12. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. CO emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs. [District Rule 4305, 4306, and 4320]
13. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 4305, 4306 and 4320]
14. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]
15. During the 36-month source testing interval, the owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306]
16. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306]
17. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. 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 week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306, and 4320]
18. The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rule 4305 and as approved by the District. The normal range/level shall be that for which compliance with applicable NOx and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305, 4306, and 4320]
19. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305, 4306, and 4320]
20. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, 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 new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

21. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305, 4306, and 4320]
22. Permittee shall maintain daily records of the type and quantity of fuel combusted by the boiler. [District Rule 2201]
23. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]
24. ATCs S-7063-8-5, '-9-5, and '-18-2 shall be implemented within 90 days of startup of turbines S-7063-19 and '-20. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: S-7063-19-0

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

EQUIPMENT DESCRIPTION:

5.7 MW NATURAL GAS-FIRED SOLAR TAURUS 60S TURBINE POWERING AN ELECTRICAL GENERATOR WITH AN UNFIRED HEAT RECOVERY STEAM GENERATOR WITH SELECTIVE CATALYTIC REDUCTION AND AN OXIDATION CATALYST

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Heat recovery steam generator design shall provide space for additional catalysts if additional catalyst are necessary to achieve NOx emission limits. [District Rule 2201]
3. Maximum heat input rating of Solar Taurus 60S gas-fired turbine engine shall not exceed 64.47 MMBtu/hr. [District Rule 2201]
4. Gas turbine engine lube oil vents, generator lube oil vents, and lube oil accumulator vents shall be equipped with mist eliminators. Lube oil vents shall not exhibit visible emissions of 5% opacity or greater except for up to three minutes in any hour. [District Rule 2201]
5. Gas-fired turbine engine shall be equipped with selective catalytic reduction (SCR) NOx control system utilizing ammonia as reducing agent. [District Rule 2201]
6. Gas turbine shall be fired exclusively on PUC-regulated natural gas with a sulfur content not exceeding 1.0 gr S/100 scf. [District Rule 2201]
7. Gas turbine shall be equipped with continuously recording fuel gas flow meter. [District Rule 2201]
8. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

S-7063-19-0; Jan 25 2012 2:46PM - EDGEHLR : Joint Inspection NOT Required

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9. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
10. Except during startup and shutdown, emissions from the gas turbine system shall not exceed any of the following limits: 2.5 ppmvd NOx @ 15% O2 referenced as NO2; 6.0 ppmvd CO @ 15% O2; 0.021 lb-PM10/MMBtu; 2.0 ppmvd VOC @ 15% O2 referenced as methane; and 0.00285 lb-SOx/MMBtu referenced as SO2. NOx and CO emission limits are based on 3-hour rolling average period. [District Rules 2201 and 4703]
11. Emissions concentration limits shall not apply during initial commission of the unit for a period not to exceed 60 days of initial firing. [District Rule 2201]
12. Start-up shall not exceed 2 hours per event. [District Rule 4703]
13. Shutdown shall not exceed 2 hours per event. [District Rule 4703]
14. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703]
15. 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]
16. 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]
17. No more than 3 startups nor 3 shutdowns shall occur per day and no more than 365 startups nor 365 shutdowns shall occur per year. [District Rule 2201]
18. Ammonia (NH3) emissions shall not exceed 5 ppmvd @ 15% O2 over a 24-hour average period. [District Rule 4102]
19. Combined fuel use for gas turbines S-7063-19 and -20 shall not exceed 871,634 MMBtu/yr. [District Rule 2201]
20. Emissions from the gas turbine system shall not exceed any of the following limits: 17.1 lb-NOx/day referenced as NO2; 4.4 lb-SOx/day; 32.5 lb-PM10/day; 71.1 lb-CO/day; 8.1 lb-VOC/day; and 10.7 lb-NH3/day. [District Rule 2201]
21. Combined emissions from gas turbines S-7063-19 and -20 shall not exceed any of the following limits: 8,763 lb-NOx/yr; 2,484 lb-SOx/yr; 18,304 lb-PM10/yr; 24,118 lb-CO/yr; 3,201 lb-VOC/yr; and 6,014 lb-NH3/yr. [District Rule 2201]
22. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
23. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
24. Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NOx and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rules 2201 and 4703, 40 CFR part 64, 40 CFR 60.4355]
25. The permittee shall monitor and record the ammonia injection rate on a daily basis to assure the emission control system is functioning properly. Monitoring shall not be required if the gas turbine is not in operation, i.e. the gas turbine need not be started solely to perform monitoring. [40 CFR Part 64]
26. The approved ammonia injection rate operating range for monitoring daily compliance shall be established from manufacturer's information or by source testing this unit, and shall be stated on this permit. This operating range must be determined during the next source test or within six months, whichever comes first. [40 CFR Part 64]

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CONDITIONS CONTINUE ON NEXT PAGE

27. 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. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. 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, 40 CFR part 64, 40 CFR 60.4355]
28. The owner or operator shall submit to the District information correlating the ammonia injection rate to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when ammonia injection rate cannot be monitored. [District Rule 4703]
29. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64]
30. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64]
31. If the District or EPA determine that a Quality Improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR Part 64]
32. The permittee shall monitor and record the stack concentration of NOx (as NO₂), CO, and O₂ weekly. If compliance with NOx and CO emission is demonstrated for eight (8) consecutive weeks, then the monitoring frequency shall 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]
33. 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 emission limits after eight (8) hour, 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 permitted emissions limits. 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]
34. 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 2201 and 4703]
35. 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 2201 and 4703]

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CONDITIONS CONTINUE ON NEXT PAGE

36. 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 NO_x, 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]
37. 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]
38. 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]
39. Source testing to determine compliance with the NO_x, CO, VOC, and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.4400]
40. 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]
41. The following test methods shall be used: NO_x - 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; natural gas fuel sulfur content: ASTM D3246; natural gas higher heating value (HHV): ASTM D3588-91, 1826-88, or 1945-81. 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)]
42. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60.4375(b)]
43. 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, total hours of operation, the type and quantity of fuel used, duration of each start-up and each shutdown time period. [District Rule 4703]
44. The permittee shall maintain records including as utility bills/invoices from natural gas supplier for fuel sulfur content verification. [40 CFR Subpart 60.4365]
45. The permittee shall maintain records of daily and annual natural gas consumption (MMBtu) of gas turbine engine, daily and annual calculated emissions, ammonia injection rate, and catalyst inlet temperature. [District Rule 2201 and 40 CFR Subpart 60.4365]
46. Applicant shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_x emissions control system. [40 CFR 60.4355]
47. All records required to be maintained by this permit shall be maintained for a period of five years and shall be made readily available for District inspection upon request. [District Rule 2201]
48. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 132 lb/quarter and PM₁₀: 1988 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
49. ERC Certificate Numbers N-836-2 and N-986-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
50. ATCs S-7063-8-5, '-9-5, and '-18-2 shall be implemented within 90 days of startup of turbines S-7063-19 and '-20. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-7063-20-0

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC
MAILING ADDRESS: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

LOCATION: 2000 NORTH PLAZA DRIVE
VISALIA, CA 93291

EQUIPMENT DESCRIPTION:

5.7 MW NATURAL GAS-FIRED SOLAR TAURUS 60S TURBINE POWERING AN ELECTRICAL GENERATOR WITH AN UNFIRED HEAT RECOVERY STEAM GENERATOR WITH SELECTIVE CATALYTIC REDUCTION AND AN OXIDATION CATALYST

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Heat recovery steam generator design shall provide space for additional catalysts if additional catalyst are necessary to achieve NOx emission limits. [District Rule 2201]
3. Maximum heat input rating of Solar Taurus 60S gas-fired turbine engine shall not exceed 64.47 MMBtu/hr. [District Rule 2201]
4. Gas turbine engine lube oil vents, generator lube oil vents, and lube oil accumulator vents shall be equipped with mist eliminators. Lube oil vents shall not exhibit visible emissions of 5% opacity or greater except for up to three minutes in any hour. [District Rule 2201]
5. Gas-fired turbine engine shall be equipped with selective catalytic reduction (SCR) NOx control system utilizing ammonia as reducing agent. [District Rule 2201]
6. Gas turbine shall be fired exclusively on PUC-regulated natural gas with a sulfur content not exceeding 1.0 gr S/100 scf. [District Rule 2201]
7. Gas turbine shall be equipped with continuously recording fuel gas flow meter. [District Rule 2201]
8. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

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Sayed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services
9-7063-20-0 : Jan 25 2012 2:48PM - EDGEHLR : Joint Inspection NOT Required

9. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
10. Except during startup and shutdown, emissions from the gas turbine system shall not exceed any of the following limits: 2.5 ppmvd NO_x @ 15% O₂ referenced as NO₂; 6.0 ppmvd CO @ 15% O₂; 0.021 lb-PM₁₀/MMBtu; 2.0 ppmvd VOC @ 15% O₂ referenced as methane; and 0.00285 lb-SO_x/MMBtu referenced as SO₂. NO_x and CO emission limits are based on 3-hour rolling average period. [District Rules 2201 and 4703]
11. Emissions concentration limits shall not apply during initial commission of the unit for a period not to exceed 60 days of initial firing. [District Rule 2201]
12. Start-up shall not exceed 2 hours per event. [District Rule 4703]
13. Shutdown shall not exceed 2 hours per event. [District Rule 4703]
14. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703]
15. 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]
16. 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]
17. No more than 3 startups nor 3 shutdowns shall occur per day and no more than 365 startups nor 365 shutdowns shall occur per year. [District Rule 2201]
18. Ammonia (NH₃) emissions shall not exceed 5 ppmvd @ 15% O₂ over a 24-hour average period. [District Rule 4102]
19. Combined fuel use for gas turbines S-7063-19 and '-20 shall not exceed 871,634 MMBtu/yr. [District Rule 2201]
20. Emissions from the gas turbine system shall not exceed any of the following limits: 17.1 lb-NO_x/day referenced as NO₂; 4.4 lb-SO_x/day; 32.5 lb-PM₁₀/day; 71.1 lb-CO/day; 8.1 lb-VOC/day; and 10.7 lb-NH₃/day. [District Rule 2201]
21. Combined emissions from gas turbines S-7063-19 and '-20 shall not exceed any of the following limits: 8,763 lb-NO_x/yr; 2,484 lb-SO_x/yr; 18,304 lb-PM₁₀/yr; 24,118 lb-CO/yr; 3,201 lb-VOC/yr; and 6,014 lb-NH₃/yr. [District Rule 2201]
22. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]
23. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201]
24. Ammonia shall be injected whenever the selective catalytic reduction system catalyst temperature exceeds the minimum ammonia injection temperature recommended by the manufacturer. The minimum ammonia injection rate demonstrated during the initial compliance test to result in compliance with the NO_x and ammonia emissions limits shall be imposed as a condition in the Permit to Operate. [District Rules 2201 and 4703, 40 CFR part 64, 40 CFR 60.4355]
25. The permittee shall monitor and record the ammonia injection rate on a daily basis to assure the emission control system is functioning properly. Monitoring shall not be required if the gas turbine is not in operation, i.e. the gas turbine need not be started solely to perform monitoring. [40 CFR Part 64]
26. The approved ammonia injection rate operating range for monitoring daily compliance shall be established from manufacturer's information or by source testing this unit, and shall be stated on this permit. This operating range must be determined during the next source test or within six months, whichever comes first. [40 CFR Part 64]

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CONDITIONS CONTINUE ON NEXT PAGE

27. 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. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. 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, 40 CFR part 64, 40 CFR 60.4355]
28. The owner or operator shall submit to the District information correlating the ammonia injection rate to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when ammonia injection rate cannot be monitored. [District Rule 4703]
29. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64]
30. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64]
31. If the District or EPA determine that a Quality Improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR Part 64]
32. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 weekly. If compliance with NOx and CO emission is demonstrated for eight (8) consecutive weeks, then the monitoring frequency shall 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]
33. 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 emission limits after eight (8) hour, 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 permitted emissions limits. 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]
34. 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 2201 and 4703]
35. 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 2201 and 4703]

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CONDITIONS CONTINUE ON NEXT PAGE

36. 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 NO_x, 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]
37. 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]
38. 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]
39. Source testing to determine compliance with the NO_x, CO, VOC, and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.4400]
40. 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]
41. The following test methods shall be used: NO_x - 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; natural gas fuel sulfur content: ASTM D3246; natural gas higher heating value (HHV): ASTM D3588-91, 1826-88, or 1945-81. 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)]
42. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60.4375(b)]
43. 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, total hours of operation, the type and quantity of fuel used, duration of each start-up and each shutdown time period. [District Rule 4703]
44. The permittee shall maintain records including as utility bills/invoices from natural gas supplier for fuel sulfur content verification. [40 CFR Subpart 60.4365]
45. The permittee shall maintain records of daily and annual natural gas consumption (MMBtu) of gas turbine engine, daily and annual calculated emissions, ammonia injection rate, and catalyst inlet temperature. [District Rule 2201 and 40 CFR Subpart 60.4365]
46. Applicant shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_x emissions control system. [40 CFR 60.4355]
47. All records required to be maintained by this permit shall be maintained for a period of five years and shall be made readily available for District inspection upon request. [District Rule 2201]
48. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 132 lb/quarter and PM₁₀: 1988 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
49. ERC Certificate Numbers N-836-2 and N-986-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
50. ATCs S-7063-8-5, '-9-5, and '-18-2 shall be implemented within 90 days of startup of turbines S-7063-19 and '-20. [District Rule 2201]

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