



JUN 11 2012

Mr. Sy Lee
California Dairies Inc.
2000 N Plaza Drive
Visalia, CA 93291

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1346
Project # S-1111873**

Dear Mr. Lee:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. California Dairies, Inc. is applying for Authorities to Construct to install two new Solar Turbine cogeneration units to provide the Tipton facility with both electricity and steam. The proposed project will allow two existing boilers, S-1346-18 and -19, to operate less.

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

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

Thank you for your cooperation in this matter.

Sincerely,



David Warner
Director of Permit Services

DW: AD/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

JUN 11 2012

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

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1346
Project # S-1111873**

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for California Dairies Inc. located at 11894 Avenue 120 in Tipton, which has been issued a Title V permit. California Dairies Inc. is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. California Dairies, Inc. is applying for Authorities to Construct to install two new Solar Turbine cogeneration units to provide the Tipton facility with both electricity and steam. The proposed project will allow two existing boilers, S-1346-18 and '-19, to operate less.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # S-1346-18-6, '-19-6, '-25-0, and '-26-0 with Certificates of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

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

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: AD/cm

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San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

JUN 11 2012

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

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1346
Project # S-1111873

Dear Mr. Tollstrup:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. California Dairies, Inc. is applying for Authorities to Construct to install two new Solar Turbine cogeneration units to provide the Tipton facility with both electricity and steam. The proposed project will allow two existing boilers, S-1346-18 and '-19, to operate less.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # S-1346-18-6, '-19-6, '-25-0, and '-26-0 with Certificates of Conformity. After demonstrating compliance with the Authorities to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

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

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: AD/cm

Enclosures

Seyed Sadredin

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of California Dairies Inc. for its dairy located at 11894 Avenue 120 in Tipton, California. California Dairies, Inc. is applying for Authorities to Construct to install two new Solar Turbine cogeneration units to provide the Tipton facility with both electricity and steam. The proposed project will allow two existing boilers, S-1346-18 and '-19, to operate less.

The District's analysis of the legal and factual basis for this proposed action, project #S-1111873, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. There are no emission increases associated with this proposed action. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Two New Natural Gas Turbines and Modifications to 2 Existing Boilers

Facility Name: California Dairies, Inc.

Date: April 17, 2012

Mailing Address: 2000 N Plaza Drive
Visalia, Ca 93291

Engineer: Ashley Dahlstrom

Lead Engineer: Allan Phillips *ASUPRA AQE*

Contact Person: Sy Dang Le

APR 25 2012

Telephone: (559) 233-5154 ext 119

Fax: (559) 268-5101

E-Mail: sle@californiadairies.com

Application #(s): S-1346-18-6, '-19-6, '-25-0, and '-26-0

Project #: S-1111873

Deemed Complete: September 27, 2011

I. Proposal

California Dairies, Inc. (CDI) is applying for Authorities to Construct to install two new Solar Turbine cogeneration units to provide the Tipton facility with both electricity and steam. The proposed project will allow two existing boilers, S-1346-18 and '-19, to operate less.

The increase in NO_x and PM₁₀ emissions from the new turbines in this project will be partially mitigated by the reduction in emissions from boilers S-1346-18 and '-19. The project will result in an increase in NO_x and PM emissions. This project triggers the requirements of public notice and requires offsets for NO_x and PM₁₀ emission increases.

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

Additionally, the applicant has proposed simultaneous operation of the 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.

Therefore, all of the proposed ATCs will include the following condition:

- *ATCs S-1346-18-6 and -19-6 shall be implemented within 90 days of startup of turbines S-1346-25-0 and -26-0. [District Rule 2201]*

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.

CDI received their Title V Permit on December 03, 2003. This modification can be classified as a Title V significant modification pursuant to Rule 2520, Section 3.20 and 3.29, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. CDI must apply to administratively amend their Title V permit.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4703	Stationary Gas Turbines (09/20/07)
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

The facility is located at 11894 Ave 120 in Tipton, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The proposed project will consist of two Solar Turbine Taurus 60S turbines with Heat Recovery Steam Generators (HRSG). The proposed cogeneration 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 the 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 gases pass through the power turbine blades which in turn power the compressor section and an electrical generator.

The cogeneration units will allow two existing boilers (S-1346-18 and '-19) to be used less.

Current PTOs S-1346-18-5 and '-19-5 are included in Appendix B.

V. Equipment Listing

Pre-Project Equipment Description:

S-1346-18-5: 31.5 MMBTU/HR NATURAL GAS-FIRED HURST BOILER #4 EQUIPPED WITH ULTRA LOW NOX BURNER

S-1346-19-5: 31.5 MMBTU/HR NATURAL GAS-FIRED HURST BOILER #5 EQUIPPED WITH ULTRA LOW NOX BURNER

Proposed Modification:

Two turbine units will be added as new emission units and two boilers will be modified to limit their use to 22,680 MMBtu/yr. The ATC equipment descriptions for the boilers will read as follows:

S-1346-18-6: MODIFICATION OF 31.5 MMBTU/HR NATURAL GAS-FIRED HURST BOILER #4 EQUIPPED WITH ULTRA LOW NOX BURNER: LIMIT USE TO 22,680 MMBTU/YR

S-1346-19-6: MODIFICATION OF 31.5 MMBTU/HR NATURAL GAS-FIRED HURST BOILER #5 EQUIPPED WITH ULTRA LOW NOX BURNER: LIMIT USE TO 22,680 MMBTU/YR

Post Project Equipment Description:

S-1346-18-6: 31.5 MMBTU/HR NATURAL GAS-FIRED STANDBY REPLACEMENT HURST BOILER #4 EQUIPPED WITH ULTRA LOW NOX BURNER

S-1346-19-6: 31.5 MMBTU/HR NATURAL GAS-FIRED STANDBY REPLACEMENT HURST BOILER #5 EQUIPPED WITH ULTRA LOW NOX BURNER

S-1346-25-0: SOLAR TURBINE TAURUS 60S NATURAL GAS TURBINE DRIVING A GENERATOR WITH AN ISO RATING OF 5.7 MW WITH UNFIRED HEAT RECOVERY STEAM GENERATOR (HRSG) WITH SELECTIVE CATALYTIC REDUCTION AND OXIDATION CATALYST

S-1346-26-0: SOLAR TURBINE TAURUS 60S NATURAL GAS TURBINE DRIVING A GENERATOR WITH AN ISO RATING OF 5.7 MW WITH UNFIRED HEAT RECOVERY STEAM GENERATOR (HRSG) WITH SELECTIVE CATALYTIC REDUCTION AND OXIDATION CATALYST

VI. Emission Control Technology Evaluation

Boilers S-1346-18 and '-19

NO_x is the major pollutant of concern when burning natural gas. NO_x formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_x) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_x). Due to the low fuel nitrogen content of natural gas, nearly all NO_x emissions are thermal NO_x. Formation of thermal NO_x is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

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

Gas Turbines S-1346-25 and '-26

The turbines will be equipped with SCR. The SCR system consists of ammonia injection in the GTE exhaust upstream of the catalyst and a catalyst bed. The catalyst bed for the turbine will be appropriately calibrated for exhaust temperatures in the outlet. The ammonia reduces NO_x to N₂ and O₂ in the presence of the catalyst. Unreacted ammonia (ammonia slip) is present in the exhaust. Ammonia slip will be limited to 5 ppmv @ 15% O₂.

A CO 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 by promoting complete combustion.

VII. General Calculations

A. Assumptions

Startup and Shutdown Emissions

- 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 **Appendix C** indicates less than 9 minutes per event
- Startup time is for the turbine alone without SCR.

Existing Boilers '-18 and '-19 – Pre-project

- Units fired solely on PUC regulated natural gas (applicant).
- EPA F-factor: 8,578 dscf/MMBtu (1 atm, 60°F)
- Fuel Heating Value: 1,020 Btu/SCF (HHV)
940 BTU/SCF (LHV)
- Operating schedule: 100% load, 24 hours/day, 8,760 hours/year (S-1346-18)
100% load, 24 hours/day, 8,760 hours/year (S-1346-19)

Existing Boilers '-18 and '-19 – Post-project

- Units fired solely on PUC regulated natural gas (applicant).
- EPA F-factor: 8,578 dscf/MMBtu (1 atm, 60°F)
- Fuel Heating Value: 1,020 Btu/SCF (HHV)
940 BTU/SCF (LHV)
- Operating schedule: 100% load, 24 hours/day, 720 hours/year (S-1346-18)
100% load, 24 hours/day, 720 hours/year (S-1346-19)
- Operating schedule of 720 hours/year limits use of boilers to 22,680 MMBtu/yr per boiler.

New Turbines '-25 and '-26

- Units fired solely on PUC regulated natural gas (applicant).
- 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)
- Operating Schedule: 100% load, 24 hours/day, 8,760 hours/year (S-1346-25)
100% load, 24 hours/day, 1,830 hours/year (S-1346-26)
- Operating schedule limits combined use of turbines to 682,737 MMBtu/yr.

First Year Operation

Comissioning Period will occur 24 hrs/day for 60 days total during only the first year. Turbines will operate in compliance with Rule 4703 except during startup and shutdown.

Existing Boilers '-18 and '-19 – During Comissioning Period:

- Operating Schedule: 100% load, 24 hours/day, 1,440 hours/year (S-1346-18)
100% load, 24 hours/day, 1,440 hours/year (S-1346-19)

Existing Boilers '-18 and '-19 – After Comissioning Period:

- Operating Schedule: 100% load, 24 hours/day, 720 hours/year (S-1346-18)
100% load, 24 hours/day, 720 hours/year (S-1346-19)

New Turbines '-25 and '-26 – During Comissioning Period:

- Operating Schedule: 25% load, 24 hours/day, 2,880 hours/year (Combined Use)

New Turbines '-25 and '-26 – After Comissioning Period:

- Operating Schedule: 100% load, 24 hours/day, 7,710 hours/year (Combined Use)

B. Emission Factors

Boilers (S-1346-18 and '-19):

Only the operation hours of the boilers will be changed; therefore, the emission factors stated in the boiler permits will remain the same. The current permitted limits are listed below:

Pollutant	Emission Factor (lb/MMBtu)	Source
NO _x	0.008 lb-NO _x /MMbtu	Current Permit Limit
SO _x	0.00285 lb-SO _x /MMbtu	Current Permit Limit
PM ₁₀	0.0076 lb-PM ₁₀ /MMbtu	Current Permit Limit
CO	0.074 lb-CO/MMBtu	Current Permit Limit
VOC	0.0055 lb-VOC/MMBtu	Current Permit Limit

Turbine Emission Factors (S-1346-25 and '-26)

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

EF_{2NOx} = 2.5 ppmvd @ 15% O₂ (Source: Applicant's Proposal)

NOx emission limit is converted from ppmvd to lb/MMBtu as follows:

$$EF_{2NOx} = \frac{(2.5) \times \left(8,578 \frac{\text{dscf}}{\text{MMBtu}}\right) \times \left(46 \frac{\text{lb}}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}}\right) \times (10^6)} = 0.0092 \frac{\text{lb}}{\text{MMBtu}}$$

EF_{2SOx} = 1.00 gr/100 dscf (Source: District Policy APR 1720)

SOx emission limit is converted from gr/100 dscf to lb/MMBtu as follows:

$$EF_{2SOx} = \left(\frac{1.00 \text{ gr}}{100 \text{ dscf}}\right) \left(\frac{\text{lb}}{7,000 \text{ gr}}\right) \left(\frac{64 \text{ lb} - \text{SO}_2}{32 \text{ lb} - \text{S}}\right) \left(\frac{\text{scf}}{1,000 \text{ Btu}}\right) \left(\frac{10^6 \text{ Btu}}{\text{MMBtu}}\right) = 0.00285 \frac{\text{lb}}{\text{MMBtu}}$$

EF_{2PM10} = 0.021 lb/MMBtu

EF_{2CO} = 6 ppmvd @ 15% O₂ (Source: Applicant's Proposal)

CO emission limit is converted from ppmvd to lb/MMBtu as follows:

$$EF_{2CO} = \frac{(6) \times \left(8,578 \frac{\text{dscf}}{\text{MMBtu}}\right) \times \left(28 \frac{\text{lb}}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}}\right) \times (10^6)} = 0.0134 \frac{\text{lb}}{\text{MMBtu}}$$

EF_{2CO} = 0.0969 lb/MMBtu during Commission Period (Source: Applicant's Proposal)

CO emission limit is converted from lb/MMBtu to ppmvd as follows:

$$0.0969 = \frac{EF2_{CO} \times \left(8,578 \frac{\text{dscf}}{\text{MMBtu}}\right) \times \left(28 \frac{\text{lb}}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}}\right) \times (10^6)}$$

$$EF2_{CO} = 43.48 \text{ ppmvd CO @ 15\% O}_2$$

$$EF2_{VOC} = 2.0 \text{ ppmvd @ 15\% O}_2 \text{ (Source: BACT)}$$

VOC emission limit is converted from ppmvd to lb/MMBtu as follows:

$$EF2_{VOC} = \frac{(2.0) \times \left(8,578 \frac{\text{dscf}}{\text{MMBtu}}\right) \times \left(16 \frac{\text{lb}}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}}\right) \times (10^6)} = 0.0025 \frac{\text{lb}}{\text{MMBtu}}$$

$$EF2_{VOC} = 0.0078 \text{ lb/MMBtu during Commission Period (Source: Applicant's Proposal)}$$

VOC emission limit is converted from lb/MMBtu to ppmvd as follows:

$$0.0078 = \frac{EF2_{VOC} \times \left(8,578 \frac{\text{dscf}}{\text{MMBtu}}\right) \times \left(16 \frac{\text{lb}}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}}\right) \times (10^6)}$$

$$EF2_{CO} = 6.13 \text{ ppmvd VOC @ 15\% O}_2$$

$$EF2_{NH3} = 5.0 \text{ ppmvd @ 15\% O}_2 \text{ (Source: Applicant's Proposal)}$$

NH₃ emission limit is converted from ppmvd to lb/MMBtu as follows:

$$EF2_{NH3} = \frac{(5.0) \times \left(8,578 \frac{\text{dscf}}{\text{MMBtu}}\right) \times \left(17 \frac{\text{lb}}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}}\right) \times (10^6)} = 0.0068 \frac{\text{lb}}{\text{MMBtu}}$$

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

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Boilers (S-1346-18 and '-19):

PE1 - Daily Emissions (S-1346-18-5)								
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	6.1	(lb/day)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	2.2	(lb/day)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	5.8	(lb/day)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	55.9	(lb/day)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	4.2	(lb/day)

PE1 - Annual Emissions (S-1346-18-5)								
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	2,208	(lb/yr)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	786	(lb/yr)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	2,097	(lb/yr)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	20,420	(lb/yr)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	1,518	(lb/yr)

PE1 - Daily Emissions (S-1346-19-5)								
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	6.1	(lb/day)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	2.2	(lb/day)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	5.8	(lb/day)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	55.9	(lb/day)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	4.2	(lb/day)

PE1 - Annual Emissions (S-1346-19-5)							
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	2,208 (lb/yr)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	786 (lb/yr)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	2,097 (lb/yr)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	20,420 (lb/yr)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	8,760	(hr/yr) =	1,518 (lb/yr)

Combined annual emissions for boilers '-18, and '-19

NO_x: 2 x 2208 lb/yr = 4,416 lb/yr

SO_x: 2 x 786 lb/yr = 1,572 lb/yr

PM₁₀: 2 x 2,097 lb/yr = 4,194 lb/yr

CO: 2 x 20,420 lb/yr = 40,840 lb/yr

VOC: 2 x 1,518 lb/yr = 3,036 lb/yr

Turbines (S-1346-25 and '-26):

Turbine S-1346-25-0 and '-26-0 are new units; therefore, PE1 = 0.

2. Post Project Potential to Emit (PE2)

Boilers (S-1346-18 and '-19):

As a result of this project, the boilers (S-1346-18 and '-19) will operate less. The boilers will be limited to 30 days of operation per year per boiler to allow for maintenance and testing of the turbines. Therefore, each boiler will be limited to 720 hours per year of operation (30 days/year x 24 hrs/day). Given that the boilers are 31.5 MMBtu/hr, each boiler will be limited to 22,680 MMBtu/yr.

PE2 - Daily Emissions (S-1346-18-6)							
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	6.1 (lb/day)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	2.2 (lb/day)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	5.8 (lb/day)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	55.9 (lb/day)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	4.2 (lb/day)

PE2 - Annual Emissions (S-1346-18-6)							
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	181 (lb/yr)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	65 (lb/yr)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	172 (lb/yr)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	1,678 (lb/yr)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	125 (lb/yr)

PE2 - Daily Emissions (S-1346-19-6)								
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	6.1	(lb/day)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	2.2	(lb/day)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	5.8	(lb/day)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	55.9	(lb/day)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	24	(hr/day) =	4.2	(lb/day)

PE2 - Annual Emissions (S-1346-19-6)								
NO _x	0.008	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	181	(lb/yr)
SO _x	0.00285	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	65	(lb/yr)
PM ₁₀	0.0076	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	172	(lb/yr)
CO	0.074	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	1,678	(lb/yr)
VOC	0.0055	(lb/MMBtu) x	31.5	(MMBtu/hr) x	720	(hr/yr) =	125	(lb/yr)

Combined annual emissions for boilers '-18, and '-19

NO_x: 2 x 181 lb/yr = 362 lb/yr

SO_x: 2 x 65 lb/yr = 130 lb/yr

PM₁₀: 2 x 172 lb/yr = 344 lb/yr

CO: 2 x 1,678 lb/yr = 3,356 lb/yr

VOC: 2 x 125 lb/yr = 250 lb/yr

Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day) for each Boiler	Annual Emissions (lb/year) for each boiler
NO _x	6.1	181
SO _x	2.2	65
PM ₁₀	5.8	172
CO	55.9	1,678
VOC	4.2	125

Turbines (S-1346-25 and '-26):

Startup and Shutdown Emissions

Startup - Daily 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 = 3.0 lb/day

Shutdown – Daily 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 = 1.2 lb/day

Startup – Annual Emissions		
	lb/event	Annual Emissions
NO _x	0.5	0.5 x 365 = 183 lb/yr
CO	12.5	12.5 x 365 = 4,563 lb/yr
VOC	1.0	1.0 x 365 = 365 lb/yr

Shutdown – Annual Emissions		
	lb/event	Source
NO _x	0.4	0.4 x 365 = 146 lb/yr
CO	4.3	4.3 x 365 = 1,570 lb/yr
VOC	0.4	0.4 x 365 = 146 lb/yr

Baseload Emissions

PE2 - Daily Emissions (S-1346-25-0)							
NO _x	0.0092	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	14.2 (lb/day)
SO _x	0.00285	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	4.4 (lb/day)
PM ₁₀	0.021	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	32.5 (lb/day)
CO	0.0134	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	20.7 (lb/day)
VOC	0.0025	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	3.9 (lb/day)
NH ₃	0.0068	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	10.5 (lb/day)

PE2 - Annual Emissions (S-1346-25-0)							
NO _x	0.0092	(lb/MMBtu) x	64.47	(MMBtu/hr) x	8,760	(hr/yr) =	5,196 (lb/yr)
SO _x	0.00285	(lb/MMBtu) x	64.47	(MMBtu/hr) x	8,760	(hr/yr) =	1,610 (lb/yr)
PM ₁₀	0.021	(lb/MMBtu) x	64.47	(MMBtu/hr) x	8,760	(hr/yr) =	11,860 (lb/yr)
CO	0.0134	(lb/MMBtu) x	64.47	(MMBtu/hr) x	8,760	(hr/yr) =	7,568 (lb/yr)
VOC	0.0025	(lb/MMBtu) x	64.47	(MMBtu/hr) x	8,760	(hr/yr) =	1,412 (lb/yr)
NH ₃	0.0068	(lb/MMBtu) x	64.47	(MMBtu/hr) x	8,760	(hr/yr) =	3,840 (lb/yr)

PE2 - Daily Emissions (S-1346-26-0)							
NO _x	0.0092	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	14.2 (lb/day)
SO _x	0.00285	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	4.4 (lb/day)
PM ₁₀	0.021	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	32.5 (lb/day)
CO	0.0134	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	20.7 (lb/day)
VOC	0.0025	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	3.9 (lb/day)
NH ₃	0.0068	(lb/MMBtu) x	64.47	(MMBtu/hr) x	24	(hr/day) =	10.5 (lb/day)

PE2 - Annual Emissions (S-1346-26-0)							
NO _x	0.0092	(lb/MMBtu) x	64.47	(MMBtu/hr) x	1,830	(hr/yr) =	1,085 (lb/yr)
SO _x	0.00285	(lb/MMBtu) x	64.47	(MMBtu/hr) x	1,830	(hr/yr) =	336 (lb/yr)
PM ₁₀	0.021	(lb/MMBtu) x	64.47	(MMBtu/hr) x	1,830	(hr/yr) =	2,478 (lb/yr)
CO	0.0134	(lb/MMBtu) x	64.47	(MMBtu/hr) x	1,830	(hr/yr) =	1,581 (lb/yr)
VOC	0.0025	(lb/MMBtu) x	64.47	(MMBtu/hr) x	1,830	(hr/yr) =	295 (lb/yr)
NH ₃	0.0068	(lb/MMBtu) x	64.47	(MMBtu/hr) x	1,830	(hr/yr) =	802 (lb/yr)

Total Emissions = Baseload + Startup/Shutodwn Emissions

Total Daily Emissions (S-1346-25-0) [Baseload + Startup/Shutdown]					
NO _x	14.2	(lb/day) +	2.7	(lb/day) =	16.9 (lb/day)
SO _x	4.4	(lb/day)			4.4 (lb/day)
PM ₁₀	32.5	(lb/day)			32.5 (lb/day)
CO	20.7	(lb/day) +	50.4	(lb/day) =	71.1 (lb/day)
VOC	3.9	(lb/day) +	4.2	(lb/day) =	8.1 (lb/day)
NH ₃	10.5	(lb/day)			10.5 (lb/day)
Total Annual Emissions (S-1346-25-0) [Baseload + Startup/Shutdown]					
NO _x	5,196	(lb/yr) +	329	(lb/yr) =	5,525 (lb/yr)
SO _x	1,610	(lb/yr)			1,610 (lb/yr)
PM ₁₀	11,860	(lb/yr)			11,860 (lb/yr)
CO	7,568	(lb/yr) +	6,133	(lb/yr) =	13,701 (lb/yr)
VOC	1,412	(lb/yr) +	511	(lb/yr) =	1,923 (lb/yr)
NH ₃	3,840	(lb/yr)			3,840 (lb/yr)

Total Daily Emissions (S-1346-26-0) [Baseload + Startup/Shutdown]					
NO _x	14.2	(lb/day) +	2.7	(lb/day) =	16.9 (lb/day)
SO _x	4.4	(lb/day)			4.4 (lb/day)
PM ₁₀	32.5	(lb/day)			32.5 (lb/day)
CO	20.7	(lb/day) +	50.4	(lb/day) =	71.1 (lb/day)
VOC	3.9	(lb/day) +	4.2	(lb/day) =	8.1 (lb/day)
NH ₃	10.5	(lb/day)			10.5 (lb/day)

Total Annual Emissions (S-1346-26-0) [Baseload + Startup/Shutdown]					
NO _x	1,085	(lb/yr) +	329	(lb/yr) =	1,414 (lb/yr)
SO _x	336	(lb/yr)			336 (lb/yr)
PM ₁₀	2,478	(lb/yr)			2,478 (lb/yr)
CO	1,581	(lb/yr) +	6,133	(lb/yr) =	7,714 (lb/yr)
VOC	295	(lb/yr) +	511	(lb/yr) =	806 (lb/yr)
NH ₃	802	(lb/yr)			802 (lb/yr)

First Year Annual emissions (including commissioning) for Both Turbines Combined:

NO_x: $0.0092 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times [(0.25 \times 2880 \text{ hrs}) + 7,710 \text{ hrs}] + (2 \times 183) + (2 \times 146)$
= **5,658 lb/yr**

SO_x: $0.00285 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times [(0.25 \times 2880 \text{ hrs}) + 7,710 \text{ hrs}]$
= **1,549 lb/yr**

PM₁₀: $0.021 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times [(0.25 \times 2880 \text{ hrs}) + 7,710 \text{ hrs}]$
= **11,413 lb/yr**

CO: $[0.0969 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times (0.25 \times 2880 \text{ hrs})] + (0.0134 \text{ lb/MMBtu} \times 64.47 \text{ MMBtu/hr} \times 7,710 \text{ hrs}) + (2 \times 4,563 \text{ lbs/yr}) + (2 \times 1,570 \text{ lbs/yr})$
= **23,425 lb/yr**

VOC: $[0.0078 \text{ lb/MMBtu/hr} \times 64.47 \text{ MMBtu/hr} \times (0.25 \times 2880)] + (0.0025 \text{ lb/MMBtu/hr} \times 64.47 \text{ MMBtu/hr} \times 7,710 \text{ hrs}) + (2 \times 365) + (2 \times 146)$
= **2,627 lb/yr**

Post Project Potential to Emit (PE2)			
	Daily Emissions (lb/day) for each Turbine Including Start-Ups and Shut-Downs	Annual Emissions (lb/year) for both Turbines Combined Including Start-Ups and Shut-Downs	1 st Year Combined Annual Emissions with Commissioning (lb/year)
NO _x	16.9	5,525 + 1,414 = 6,939	5,658
SO _x	4.4	1,610 + 336 = 1,946	1,549
PM ₁₀	32.5	11,860 + 2,478 = 14,338	11,413
CO	71.1	13,701 + 7,714 = 21,415	23,425*
VOC	8.1	1,923 + 806 = 2,729	2,627

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

Emissions profiles are included in **Appendix H**.

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since

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

The total Pre-Project Stationary Source Potential to Emit (SSPE1_{total}) can be calculated by adding the Pre-Project Potential to Emit (PE1) from all units with valid ATCs or PTOs (SSPE1_{Permit Unit}) and the sum of the ERCs that have been banked at the source and which have not been used on-site (Total_{ERC}).

SSPE1 is the SSPE2 from the last project completed for this facility (S-1081114)

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

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
S-1346-1-7	544	43	45	2570	45
S-1346-2-4	544	524	45	2570	45
S-1346-3-7	544	524	45	2570	45
S-1346-4-7	9100	140	9965	62076	420
S-1346-6-2	0	0	1321*	0	0
S-1346-7-2	0	0	*	0	0
S-1346-8-2	0	0	*	0	0
S-1346-12-3	0	0	2751	0	0
S-1346-13-2	648	16	27	153	48
S-1346-14-1	7008	105	9401	28152	526
S-1346-15-1	0	0	*	0	0
S-1346-16-1	0	0	*	0	0
S-1346-17-1	0	0	*	0	0
S-1346-18-2	2,208	786	2,097	20,420	1,518
S-1346-19-2	2,208	786	2,097	20,420	1,518
S-1346-20-2	574	13	33	116	83
S-1346-21-2	714	18	6	10	13
S-1346-22-2	714	18	6	10	13
S-1346-23-2	53	2	1	4	2
S-1346-24-1	7897	2322	17108	19393	2812
Pre-Project SSPE (SSPE1 _{total})	32,756	5,297	44,948	158,464	7,088

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.

The total Post Project Stationary Source Potential to Emit (SSPE2_{total}) can be calculated by adding the Post Project Potential to Emit (PE2) from all units with valid ATCs or PTOs (SSPE2_{Permit Unit}) and the sum of the ERCs that have been banked at the source and which have not been used on-site (Total_{ERC}).

$$SSPE2_{Total} = SSPE2_{Permit\ Unit} + Total_{ERC}$$

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
S-1346-1-7	544	43	45	2,570	45
S-1346-2-4	544	524	45	2,570	45
S-1346-3-7	544	524	45	2,570	45
S-1346-4-7	9,100	140	9,965	62,076	420
S-1346-6-2	0	0	1,321*	0	0
S-1346-7-2	0	0	*	0	0
S-1346-8-2	0	0	*	0	0
S-1346-12-3	0	0	2,751	0	0
S-1346-13-2	648	16	27	153	48
S-1346-14-1	7,008	105	9,401	28,152	526
S-1346-15-1	0	0	*	0	0
S-1346-16-1	0	0	*	0	0
S-1346-17-1	0	0	*	0	0
S-1346-18-6 MOD.	181	65	172	1,678	125
S-1346-19-6 MOD.	181	65	172	1,678	125
S-1346-20-2	574	13	33	116	83
S-1346-21-2	714	18	6	10	13
S-1346-22-2	714	18	6	10	13
S-1346-23-2	53	2	1	4	2
S-1346-24-1	7,897	2,322	17,108	19,393	2,812
S-1346-25-0 NEW	6,939	1,946	14,338	21,415	2,729
S-1346-26-0 NEW					
Pre-Project SSPE (SSPE2 _{total})	35,641	5,801	55,436	142,395	7,031

*Units S-1346-25-0 and -26-0 are limited to a combined fuel use of 682,737 MMBtu/year.

5. Major Source Determination

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

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	32,756	5,297	44,948	158,464	7,088
Post Project SSPE (SSPE2)	35,641	5,801	55,436	142,395	7,031
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	No

As seen in the table above, the facility is an existing Major Source for NO_x; however, no thresholds are being surpassed 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.

a. BE NO_x

Boilers (S-1346-18 and '-19):

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.

These emissions units have ultra low NO_x burners with an emission limit of 7.0 ppmv @ 3% O₂, based on a three-hour rolling average, which meets the requirements for achieved-in-practice BACT. Therefore, Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1) for these units.

$$BE = PE1 = 0.008 \text{ (lb/MMBtu)} \times 31.5 \text{ (MMBtu/hr)} \times 720 \text{ (hr/yr)} = 181 \text{ (lb/yr)}$$

Turbines (S-1346-25 and '-26):

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 unit has a NO_x emission limit of 2.5 ppmv@ 15% O₂, based on a three-hour rolling average, which meets the requirements for achieved-in-practice BACT. Therefore, Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1) for these units.

Since these are new units:

$$BE = PE1 = 0$$

b. BE SO_x

Boilers (S-1346-18 and '-19):

As shown in Section VII:C.5 above, the facility is not a major source for SO_x emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

$$BE = PE1 = 0.00285 \text{ (lb/MMBtu)} \times 31.5 \text{ (MMBtu/hr)} \times 8,760 \text{ (hr/yr)} = 786 \text{ (lb/yr)}$$

Turbines (S-1346-25 and '-26):

As shown in Section VII:C.5 above, the facility is not a major source for SO_x emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

Since this is a new unit:

$$BE = PE1 = 0$$

c. BE PM₁₀

Boilers (S-1346-18 and '-19):

As shown in Section VII.C.5 above, the facility is not a major source for PM₁₀ emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

$$BE = PE1 = 0.0076 \text{ (lb/MMBtu)} \times 31.5 \text{ (MMBtu/hr)} \times 8,760 \text{ (hr/yr)} = 2,097 \text{ (lb/yr)}$$

Turbines (S-1346-25 and '-26):

As shown in Section VII.C.5 above, the facility is not a major source for PM₁₀ emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

Since this is a new unit:

$$BE = PE1 = 0$$

d. BE CO

Boilers (S-1346-18 and '-19):

As shown in Section VII.C.5 above, the facility is not a major source for CO emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

$$BE = PE1 = 0.074 \text{ (lb/MMBtu)} \times 31.5 \text{ (MMBtu/hr)} \times 8,760 \text{ (hr/yr)} = 20,420 \text{ (lb/yr)}$$

Turbines (S-1346-25 and '-26):

As shown in Section VII.C.5 above, the facility is not a major source for CO emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

Since this is a new unit:

$$BE = PE1 = 0$$

e. BE VOC

Boilers (S-1346-18 and '-19):

As shown in Section VII.C.5 above, the facility is not a major source for VOC emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

$$BE = PE1 = 0.0055 \text{ (lb/MMBtu)} \times 31.5 \text{ (MMBtu/hr)} \times 8,760 \text{ (hr/yr)} = 1,518 \text{ (lb/yr)}$$

Turbines (S-1346-25 and '-26):

As shown in Section VII.C.5 above, the facility is not a major source for VOC emissions.

Therefore Baseline Emissions (BE) are equal to the Pre-project Potential to Emit (PE1).

Since this is a new unit:

BE = PE1 = 0

7. SB 288 Major Modification

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

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

SB 288 Major Modification Thresholds:			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	7,301	50,000	No
SO _x	2,076	80,000	No
PM ₁₀	14,682	30,000	No
VOC	2,979	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB288 Major Modification.

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.

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

First Step:

Any increase in NO_x greater than 0 lb/yr represents a federal major modification. Therefore, the installation of the new turbines will have NO_x emissions greater than 0 lb/yr and therefore, the project is considered a federal major modification.

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

Emission Increase = PAE – BAE

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

The boilers will operate less due to installation of the cogens; therefore, the modification of the boilers to limit their use will not result in an increase in emissions. The emission increase for the boilers is zero.

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project. Therefore, the emissions increase for the cogens is as follows:

Emission Increase = 6,939 lbs-NO_x/year for both cogens combined.

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

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 in **Appendix G**.

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 natural 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 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

For boilers S-1346-18 and '-19:

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

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

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

Pre and post-project emission factors are the same (correlation equation and factors).

$$\text{AIPE} = \text{PE2} - \text{PE1}$$

AIPE S-1346-18				
Pollutant	PE2 (lb/day)	PE1 (lb/day)	AIPE' (lb/day)	BACT Triggered? (i.e. > 2.0 lb/day)
NO _x	6.1	6.1	0	No
SO _x	2.2	2.2	0	No
PM ₁₀	5.8	5.8	0	No
CO	55.9	55.9	0	No
VOC	4.2	4.2	0	No

AIPE S-1346-19				
Pollutant	PE2 (lb/day)	PE1 (lb/day)	AIPE (lb/day)	BACT Triggered? (i.e. > 2.0 lb/day)
NO _x	6.1	6.1	0	No
SO _x	2.2	2.2	0	No
PM ₁₀	5.8	5.8	0	No
CO	55.9	55.9	0	No
VOC	4.2	4.2	0	No

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does constitute a Federal Major Modification for NO_x emissions; therefore BACT is triggered for NO_x for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

BACT Guideline 3.4.3, applies to natural gas fired turbines with between 3 and 10 MW. (See **Appendix D**)

3. Top-Down BACT Analysis

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

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

- NO_x: 2.5 ppmv @ 15% O₂, based on a three-hour average (selective catalytic reduction or equal)
- SO_x: PUC-regulated natural gas, LPG, or non-PUC-regulated natural gas with <0.75 grains-S/100 dscf, or equal
- PM₁₀: Air inlet cooler, lube oil vent coalesce, and natural gas fuel
- VOC: 2.0 ppmv @ 15% O₂, based on a three-hour average (catalytic oxidation or equal)

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	PM₁₀	CO	VOC
Post Project SSPE (SSPE2)	35,641	5,801	55,436	142,395	7,031
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	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 two new emissions units; therefore Baseline Emissions for these units are equal to zero. The facility is also proposing to modify two existing emission units; therefore, as shown above in Section VII.C.6, baseline emissions for these units are equal to PE1. Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

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

NO_x

Unit	PE2 (lb/yr)	BE (lb/yr)
'-18	362	4,416
'-19		
'-25	6,939	0
'-26		
Total	7,301	4,416

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

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([7,301 - 4,416] + 0) \times 1.5 \\ &= 2,885 \times 1.5 \\ &= 4,328 \text{ lb NO}_x/\text{year} \end{aligned}$$

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

DOR	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1.5	1,082	1,082	1,082	1,082

ATCs S-1346-25-0 through '-26-0 will each include a $1,082/2 = 541$ lbs NO_x/qtr offset requirement.

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

	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ERC #N-836-2	2,298	1,078	961	841
ERC # N-707-2	---	1,270	1,363	226
ERC #S-2731-2	50	---	24	1,282

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

PM10

Unit	PE2 (lb/yr)	BE (lb/yr)
'-18	344	4,194
'-19		
'-25	14,338	0
'-26		
Total	14,682	4,194

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([14,682 - 4,194] + 0) \times 1.5 \\ &= 10,488 \times 1.5 \\ &= 15,732 \text{ lb PM10/year} \end{aligned}$$

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>
1.5	3933	3933	3933	3933

ATCs S-1346-25-0 through '-26-0 will each include a $3933/2 = 1967$ 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). 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:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
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: 541 lb/quarter and PM10: 1967 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, N-707-2, S-2731-2 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 SSPE 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	SSRE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	32,756	35,641	20,000 lb/year	No
SO _x	5,297	5,801	54,750 lb/year	No
PM ₁₀	44,948	55,436	29,200 lb/year	No
CO	158,464	142,395	200,000 lb/year	No
VOC	7,088	7,031	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2* (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	35,641	32,756	2,885	20,000 lb/year	No
SO _x	5,801	5,297	504	20,000 lb/year	No
PM ₁₀	55,436	44,948	10,488	20,000 lb/year	No
CO	142,395	158,464	-16,069	20,000 lb/year	No
VOC	7,031	7,088	-57	20,000 lb/year	No

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

2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification purposes. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the

emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Current Rule 2201 (DEL) Conditions:

S-1346-18 and '-19

- *Emissions from this boiler shall not exceed any of the following limits: PM10: 0.0076 lb/MMBtu, SOx (as SO2): 0.00285 lb/MMBtu, NOx (as NO2): 7 ppmv @ 3% O2 or 0.008 lb NOx/MMBtu, VOC: 0.0055 lb/MMBtu, and CO: 100 ppmv @ 3% O2 or 0.074 lb CO/MMBtu. [District Rules 2201, 4305, and 4320] Y*

Proposed Rule 2201 (DEL) Conditions:

S-1346-25 and '-26

- *Emissions from the gas turbine system, when startup or shutdown or black start 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 commissioning period, emissions from the gas turbine system shall not exceed any of the following limits: 16.9 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 referenced as methane; and 10.5 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*
- *Ammonia (NH3) slip shall not exceed 5 ppmvd @ 15% O2 over a 24-hour average period. [District Rule 2201] N*

E. Compliance Assurance

1. Source Testing

S-1346-18 and '-19

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

S-1346-25 and '-26

For source testing, the exhaust from each gas turbine will be routed through its own SCR system to minimize NOx 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 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 60.335(a)] N*

2. Monitoring

S-1346-18 and '-19

Weekly monitoring of flue gas recirculation valve setting is proposed.

S-1346-25 and '-26

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 NOx 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

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

- 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 **Appendix F** 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*

Turbines	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass ¹	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ²	Pass ²
Pm _{2,5}	X	X	X	Pass ²	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

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

As shown, the calculated contribution of 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 **Appendix I**.

H. Alternate 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 2520 Federally Mandated Operating Permits

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

Section 3.20.5 states that a minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project involves the installation of new emission units that are subject to an NSPS requirement, the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

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

Rule 4001 New Source Performance Standards (NSPS)

S-1346-18 and '-19

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 are fired on natural gas. Subpart Dc has no standards for gas-fired boiler; therefore, subpart Dc does not apply.

S-1346-25 and '-26

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 (NO_x) and sulfur dioxide (SO_x) 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 NO_x 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 NO_x 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 NO_x @ 15% O₂ on a 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 SO₂ 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 SO₂/J (0.060 lb SO₂/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 - NO_x Compliance Demonstration, with Water or Steam Injection

Paragraph (a) states that when a turbine is using water or steam injection to reduce NO_x 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 NO_x control. Therefore, the requirements of this section are not applicable.

Section 60.4340 - NO_x 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 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*

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 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

- *Applicant shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NOx 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 NOx Emissions and Monitor Downtime

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

Section 60.4385 - Excess SOx 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. 60 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 60 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 NO_x 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 (**Appendix F**), 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-1346-25-0	0.0 per million	No
S-1346-26-0	0.0 per million	No

Discussion of T-BACT

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

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

- *During commissioning the turbine shall not be operated at a load greater than 25 percent and the hourly NOx emissions shall not exceed 0.0093 lbs/MMBtu. [District Rule 4102]*

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 60-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 by*

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. CDI'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 60 days of initial startup. 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 with this rule is expected.

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 turbines are:

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$$\text{NO}_x: 0.32 \text{ lb NO}_x/\text{MMBtu}^* \times 64.47 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} \times \text{ton}/2000 \text{ lb} \\ = 90.4 \text{ tons/yr}$$

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

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$$\text{NO}_x: 0.32 \text{ lb NO}_x/\text{MMBtu}^* \times 64.47 \text{ MMBtu/hr} \times 1830 \text{ hr/yr} \times \text{ton}/2000 \text{ lb} \\ = 18.9 \text{ tons/yr}$$

*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 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 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 NOx 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 action 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)

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

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

Greenhouse Gas (GHG) Significance Determination

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

Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District’s engineering evaluation (**Appendix J**) demonstrates that the project includes Best Performance Standards (BPS) for each class and category of greenhouse gas emissions unit. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

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

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct S-1346-18-6, '-19-6, '-25-0 and '-26-0 subject to the permit conditions on the attached draft Authority to Construct in **Appendix A**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1346-18-6	3020-02-H	31.5 MMBtu/hr	\$1030.00
S-1346-19-6	3020-02-H	31.5 MMBtu/hr	\$1030.00
S-1346-25-0	3020-08A-D	5700 kW	\$3062.00
S-1346-26-0	3020-08A-D	5700 kW	\$3062.00

Appendices

- A: Draft ATCs
- B: Current PTOs
- C: Manufacturer's Information of Gas Turbines
- D: BACT Guideline
- E: BACT Analysis
- F: HRA and AAQA Summary
- G: Quarterly Net Emissions Change
- H: Emission Profiles
- I: Compliance Certification
- J: CEQA GHG: Project specific Analysis

APPENDIX A
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1346-25-0

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC.
MAILING ADDRESS: 2000 N PLAZA DR
VISALIA, CA 93291-9258

LOCATION: 11894 AVENUE 120
TIPTON, CA 93272

EQUIPMENT DESCRIPTION:

SOLAR TURBINE TAURUS 60S NATURAL GAS TURBINE DRIVING A GENERATOR WITH AN ISO RATING OF 5.7 MW WITH UNFIRED HEAT RECOVERY STEAM GENERATOR (HRSG) WITH SELECTIVE CATALYTIC REDUCTION AND OXIDATION CATALYST

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. Heat recovery steam generator design shall provide space for additional catalysts if additional catalyst are necessary to achieve NOx emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Maximum heat input rating of Solar Taurus 60S gas-fired turbine engine shall not exceed 64.47 MMBtu/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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] Federally Enforceable Through Title V Permit
7. Gas-fired turbine engine shall be equipped with selective catalytic reduction (SCR) NOx control system utilizing ammonia as reducing agent. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

S-1346-25-0 : Apr 11 2012 8:47AM - DAHLSTRA : Joint Inspection NOT Required

8. 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] Federally Enforceable Through Title V Permit
9. Gas turbine shall be equipped with continuously recording fuel gas flow meter. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit
11. 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] Federally Enforceable Through Title V Permit
12. Except during startup, shutdown and the initial commission period, 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] Federally Enforceable Through Title V Permit
13. Emissions from the gas turbine system during the initial commission period shall not exceed any of the following limits: 2.5 ppmvd NO_x @ 15% O₂ referenced as NO₂; 43.48 ppmvd CO @ 15% O₂; 0.021 lb-PM₁₀/MMBtu; 6.13 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] Federally Enforceable Through Title V Permit
14. Initial commission of the unit shall not exceed 60 days of initial firing. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During startup of the unit, emissions shall not exceed any of the following limits: 0.5 lb-NO_x/startup, referenced as NO₂; 12.5 lb-CO/startup; or 1.0 lb-VOC/startup, referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit
16. During shutdown of the unit, emissions shall not exceed any of the following limits: 0.4 lb-NO_x/shutdown, referenced as NO₂; 4.3 lb-CO/shutdown; or 0.4 lb-VOC/shutdown, referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Start-up shall not exceed 2 hours per event. [District Rule 4703] Federally Enforceable Through Title V Permit
18. Shutdown shall not exceed 2 hours per event. [District Rule 4703] Federally Enforceable Through Title V Permit
19. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703] Federally Enforceable Through Title V Permit
20. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703] Federally Enforceable Through Title V Permit
21. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703] Federally Enforceable Through Title V Permit
22. 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] Federally Enforceable Through Title V Permit
23. Ammonia (NH₃) slip shall not exceed 5 ppmvd @ 15% O₂ over a 24-hour average period. [District Rule 4102] Federally Enforceable Through Title V Permit
24. Combined fuel use for gas turbines S-1346-25 and '-26 shall not exceed 543,482 MMBtu/yr during the first year. [District Rule 2201] Federally Enforceable Through Title V Permit
25. Combined fuel use for gas turbines S-1346-25 and '-26 shall not exceed 682,737 MMBtu/yr after the first year. [District Rule 2201] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

26. Upon concluding the initial shakedown period, emissions from the gas turbine system, including startup and shutdown emissions, shall not exceed any of the following limits: 16.9 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 10.5 lb-NH₃/day. [District Rule 2201] Federally Enforceable Through Title V Permit
27. Combined emissions from gas turbines S-1346-25 and -26, including startup and shutdown emissions, shall not exceed any of the following limits: 6,939 lb-NO_x/yr; 1,946 lb-SO_x/yr; 14,338 lb-PM₁₀/yr; 21,415 lb-CO/yr; 2,729 lb-VOC/yr; and 1,604 lb-NH₃/yr. [District Rule 2201] Federally Enforceable Through Title V Permit
28. 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] Federally Enforceable Through Title V Permit
29. 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] Federally Enforceable Through Title V Permit
30. 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] Federally Enforceable Through Title V Permit
31. 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] Federally Enforceable Through Title V Permit
32. 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] Federally Enforceable Through Title V Permit
33. 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] Federally Enforceable Through Title V Permit
34. 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] Federally Enforceable Through Title V Permit
35. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64] Federally Enforceable Through Title V Permit
36. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

37. 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] Federally Enforceable Through Title V Permit
38. 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 and 4703] Federally Enforceable Through Title V Permit
39. 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 Rules 2201 and 4703] Federally Enforceable Through Title V Permit
40. 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] Federally Enforceable Through Title V Permit
41. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x 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] Federally Enforceable Through Title V Permit
42. 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] Federally Enforceable Through Title V Permit
43. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
44. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit
45. 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] Federally Enforceable Through Title V Permit
46. For the purpose of determining compliance with the emission limits (ppmvd @ 15% O₂) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

47. 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)] Federally Enforceable Through Title V Permit
48. 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)] Federally Enforceable Through Title V Permit
49. 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] Federally Enforceable Through Title V Permit
50. The permittee shall maintain records including as utility bills/invoices from natural gas supplier for fuel sulfur content verification. [40 CFR Subpart 60.4365] Federally Enforceable Through Title V Permit
51. 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] Federally Enforceable Through Title V Permit
52. 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] Federally Enforceable Through Title V Permit
53. 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] Federally Enforceable Through Title V Permit
54. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 541 lb/quarter and PM₁₀: 1967 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] Federally Enforceable Through Title V Permit
55. ERC Certificate Numbers N-836-2, N-707-2, S-2731-2 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] Federally Enforceable Through Title V Permit
56. 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] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1346-26-0

LEGAL OWNER OR OPERATOR: CALIFORNIA DAIRIES, INC.
MAILING ADDRESS: 2000 N PLAZA DR
VISALIA, CA 93291-9258

LOCATION: 11894 AVENUE 120
TIPTON, CA 93272

EQUIPMENT DESCRIPTION:

SOLAR TURBINE TAURUS 60S NATURAL GAS TURBINE DRIVING A GENERATOR WITH AN ISO RATING OF 5.7 MW WITH UNFIRED HEAT RECOVERY STEAM GENERATOR (HRSG) WITH SELECTIVE CATALYTIC REDUCTION AND OXIDATION CATALYST

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. Heat recovery steam generator design shall provide space for additional catalysts if additional catalyst are necessary to achieve NOx emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Maximum heat input rating of Solar Taurus 60S gas-fired turbine engine shall not exceed 64.47 MMBtu/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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] Federally Enforceable Through Title V Permit
7. Gas-fired turbine engine shall be equipped with selective catalytic reduction (SCR) NOx control system utilizing ammonia as reducing agent. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

S-1346-26-0; Apr 11 2012 8:47AM - DAHLSTRA : Joint Inspection NOT Required

8. 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] Federally Enforceable Through Title V Permit
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12. Except during startup, shutdown and the initial commission period, 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] Federally Enforceable Through Title V Permit
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14. Initial commission of the unit shall not exceed 60 days of initial firing. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During startup of the unit, emissions shall not exceed any of the following limits: 0.5 lb-NOx/startup, referenced as NO2; 12.5 lb-CO/startup; or 1.0 lb-VOC/startup, referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit
16. During shutdown of the unit, emissions shall not exceed any of the following limits: 0.4 lb-NOx/shutdown, referenced as NO2; 4.3 lb-CO/shutdown; or 0.4 lb-VOC/shutdown, referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit
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20. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703] Federally Enforceable Through Title V Permit
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CONDITIONS CONTINUE ON NEXT PAGE

26. Upon concluding the initial shakedown period, emissions from the gas turbine system, including startup and shutdown emissions, shall not exceed any of the following limits: 16.9 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 10.5 lb-NH₃/day. [District Rule 2201] Federally Enforceable Through Title V Permit
27. Combined emissions from gas turbines S-1346-25 and -26, including startup and shutdown emissions, shall not exceed any of the following limits: 6,939 lb-NO_x/yr; 1,946 lb-SO_x/yr; 14,338 lb-PM₁₀/yr; 21,415 lb-CO/yr; 2,729 lb-VOC/yr; and 1,604 lb-NH₃/yr. [District Rule 2201] Federally Enforceable Through Title V Permit
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31. 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] Federally Enforceable Through Title V Permit
32. 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] Federally Enforceable Through Title V Permit
33. 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] Federally Enforceable Through Title V Permit
34. 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] Federally Enforceable Through Title V Permit
35. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64] Federally Enforceable Through Title V Permit
36. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

37. 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] Federally Enforceable Through Title V Permit
38. 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 and 4703] Federally Enforceable Through Title V Permit
39. 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 Rules 2201 and 4703] Federally Enforceable Through Title V Permit
40. 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] Federally Enforceable Through Title V Permit
41. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x 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] Federally Enforceable Through Title V Permit
42. 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] Federally Enforceable Through Title V Permit
43. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
44. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit
45. 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] Federally Enforceable Through Title V Permit
46. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O₂) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

47. 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)] Federally Enforceable Through Title V Permit
48. 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)] Federally Enforceable Through Title V Permit
49. 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] Federally Enforceable Through Title V Permit
50. The permittee shall maintain records including as utility bills/invoices from natural gas supplier for fuel sulfur content verification. [40 CFR Subpart 60.4365] Federally Enforceable Through Title V Permit
51. 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] Federally Enforceable Through Title V Permit
52. 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] Federally Enforceable Through Title V Permit
53. 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] Federally Enforceable Through Title V Permit
54. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 541 lb/quarter and PM₁₀: 1967 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] Federally Enforceable Through Title V Permit
55. ERC Certificate Numbers N-836-2, N-707-2, S-2731-2 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] Federally Enforceable Through Title V Permit
56. 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] Federally Enforceable Through Title V Permit

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APPENDIX B
Current PTOs

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1346-18-5

EXPIRATION DATE: 07/31/2013

SECTION: SW17 **TOWNSHIP:** 22S **RANGE:** 25E

EQUIPMENT DESCRIPTION:

31.5 MMBTU/HR NATURAL GAS-FIRED HURST BOILER #4 EQUIPPED WITH ULTRA LOW NOX BURNER

PERMIT UNIT REQUIREMENTS

1. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, nor 0.1 grain/dscf calculated to 12% CO₂, nor 10 lb/hr. [District Rule 4201 and District Rule 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
2. Unit shall be fired on PUC-regulated natural gas. [District Rule 4301, 5.2.1 and County Rules 404 (Madera), 406 (Fresno), and 407 (the six remaining SJVUAPCD counties) and 40 CFR 60.42c(d)] Federally Enforceable Through Title V Permit
3. Operator shall maintain copies of fuel invoices and supplier certifications. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
4. Nitrogen oxide (NO_x) emission concentrations in ppmv referenced at dry stack emissions shall be corrected to 3% O₂ and lb/MMBtu rates shall be calculated as lb NO₂/MMBtu of heat input (hhv). [District Rule 4305, 8.1 and/or 4351, 8.1] Federally Enforceable Through Title V Permit
5. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Rule 405 (Madera), Rule 408 (Fresno), Rule 408.2 (Merced) and 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin); Rule 402 (Madera) and 404 (all seven remaining counties in the San Joaquin Valley); SJVUAPCD Rule 4301. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
6. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Rule 405 (Madera), 408 and 409 (Kern), and 408 (all six remaining counties in the San Joaquin Valley); Rule 404 (Madera) 406 (Fresno), and 407 (all six remaining counties in the San Joaquin Valley); SJVUAPCD Rule 4801. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
7. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVUAPCD Rule 4201 and 4301. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
8. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVUAPCD Rule 1081, and County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), and 110 (Madera). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
9. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVUAPCD Rule 4305, Sec. 4.2, 5.1.1, 5.1.2., 5.4, 6.1.1, 6.2 (excepting 6.2.3), 6.3, 8.1 and Rule 4351 Sec 4.2, 5.2.2.1, 5.2.2.2, 6.1.1, 6.2 (excepting 6.2.3), 8.1. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

10. This unit has not been used to produce electricity for sale in 1985 or on or after November 15, 1990. Therefore, the requirements of 40 CFR 72.6(b) do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule and Rule 2520, 9.1] Federally Enforceable Through Title V Permit
12. Emissions from this boiler shall not exceed any of the following limits: PM10: 0.0076 lb/MMBtu, SOx (as SO2): 0.00285 lb/MMBtu, NOx (as NO2): 7 ppmv @ 3% O2 or 0.008 lb NOx/MMBtu, VOC: 0.0055 lb/MMBtu, and CO: 100 ppmv @ 3% O2 or 0.074 lb CO/MMBtu. [District Rules 2201, 4305, and 4320] Federally Enforceable Through Title V Permit
13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
14. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
15. This unit shall be tested for compliance with the NOx and CO emissions limits at least once every 12 months. After demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every thirty-six months. [District Rule 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. 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] Federally Enforceable Through Title V Permit
17. 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] Federally Enforceable Through Title V Permit
18. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
19. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

21. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
22. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
23. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1346-19-5

EXPIRATION DATE: 07/31/2013

SECTION: SW17 TOWNSHIP: 22S RANGE: 25E

EQUIPMENT DESCRIPTION:

31.5 MMBTU/HR NATURAL GAS-FIRED HURST BOILER #5 EQUIPPED WITH ULTRA LOW NOX BURNER

PERMIT UNIT REQUIREMENTS

1. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, nor 0.1 grain/dscf calculated to 12% CO₂, nor 10 lb/hr. [District Rule 4201 and District Rule 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
2. Unit shall be fired on PUC-regulated natural gas. [District Rule 4301, 5.2.1 and County Rules 404 (Madera), 406 (Fresno), and 407 (the six remaining SJVUAPCD counties) and 40 CFR 60.42c(d)] Federally Enforceable Through Title V Permit
3. Operator shall maintain copies of fuel invoices and supplier certifications. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
4. Nitrogen oxide (NO_x) emission concentrations in ppmv referenced at dry stack emissions shall be corrected to 3% O₂ and lb/MMBtu rates shall be calculated as lb NO₂/MMBtu of heat input (hhv). [District Rule 4305, 8.1 and/or 4351, 8.1] Federally Enforceable Through Title V Permit
5. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Rule 405 (Madera), Rule 408 (Fresno), Rule 408.2 (Merced) and 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin); Rule 402 (Madera) and 404 (all seven remaining counties in the San Joaquin Valley); SJVUAPCD Rule 4301. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
6. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Rule 405 (Madera), 408 and 409 (Kern), and 408 (all six remaining counties in the San Joaquin Valley); Rule 404 (Madera) 406 (Fresno), and 407 (all six remaining counties in the San Joaquin Valley); SJVUAPCD Rule 4801. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
7. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVUAPCD Rule 4201 and 4301. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
8. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVUAPCD Rule 1081, and County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), and 110 (Madera). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
9. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVUAPCD Rule 4305, Sec. 4.2, 5.1.1, 5.1.2., 5.4, 6.1.1, 6.2 (excepting 6.2.3), 6.3, 8.1 and Rule 4351 Sec 4.2, 5.2.2.1, 5.2.2.2, 6.1.1, 6.2 (excepting 6.2.3), 8.1. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

10. This unit has not been used to produce electricity for sale in 1985 or on or after November 15, 1990. Therefore, the requirements of 40 CFR 72.6(b) do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule and Rule 2520, 9.1] Federally Enforceable Through Title V Permit
12. Emissions from this boiler shall not exceed any of the following limits: PM10: 0.0076 lb/MMBtu, SOx (as SO2): 0.00285 lb/MMBtu, NOx (as NO2): 7 ppmv @ 3% O2 or 0.008 lb NOx/MMBtu, VOC: 0.0055 lb/MMBtu, and CO: 100 ppmv @ 3% O2 or 0.074 lb CO/MMBtu. [District Rules 2201, 4305, and 4320] Federally Enforceable Through Title V Permit
13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
14. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
15. This unit shall be tested for compliance with the NOx and CO emissions limits once every 12 months. After demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every thirty-six months. [District Rule 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. 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] Federally Enforceable Through Title V Permit
17. 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] Federally Enforceable Through Title V Permit
18. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
19. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

21. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
22. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
23. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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

APPENDIX C
Manufacturer's Information of Gas Turbines

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 50-6200SI						Taurus 60-7600SI						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	14.64	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	0.99	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 (6.5 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.

APPENDIX D
BACT Guideline

Per » B A C T » Bact Guideline.asp?category Level1=3&category Level2=4&category Level3=3&last Update=1 » 18 :

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**Best Available Control Technology (BACT) Guideline 3.4.3
Last Update: 1/18/2005**

Gas Turbine with Heat Recovery (= > 3 MW and = < 10 MW)

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	6.0 ppmv @ 15% O ₂ , based on a three-hour average (catalytic oxidation or equal)		
NO _x	2.5 ppmv @ 15% O ₂ , based on a three-hour average (selective catalytic reduction or equal)		
PM ₁₀	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 < 0.75 grains-S/100 dscf, or equal		
VOC	2.0 ppmv @ 15% O ₂ , based on a three-hour average (catalytic oxidation or equal)		

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

This is a Summary Page for this Class of Source. For background information, see Permit Specific BACT Determinations on Details Page.

APPENDIX E
BACT Analysis

BACT Analysis for NOx Emissions

Step 1 - Identify All Possible 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 technology infeasible alternatives are listed.

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

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).

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.

Step 5 - Select BACT

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

BACT Analysis for PM₁₀ Emissions

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.

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

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.

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

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).

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

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)

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.

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).

BACT Analysis for SO_x Emissions

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse identifies achieved-in-practice BACT for this turbine as use of PUC-regulated natural gas, LPG, or non-PUC-regulated natural gas with <0.75 grains-S/100 dscf, or equal.

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

PUC-regulated natural gas, LPG, or non-PUC-regulated natural gas with <0.75 grains-S/100 dscf, or equal.

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.

Step 5 - Select BACT

BACT for SO_x emissions for this turbine is use of PUC-regulated natural gas, LPG, or non-PUC-regulated natural gas with <0.75 grains-S/100 dscf, or equal.

APPENDIX F
HRA and AAQA Summary

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Ashley Dahlstrom – Permit Services
 From: Leland Villalvazo – Technical Services
 Date: March 8, 2012
 Facility Name: California Dairies
 Location: 11894 Ave 20 Tipton, CA
 Application #(s): S-1346-18-6, 19-6, 25-0, 26-0
 Project #: S-1111873

A. RMR SUMMARY

RMR Summary				
Categories	Turbine (25-0 & 26-0)		Project Totals	Facility Totals
Prioritization Score	NA		NA	>1.0
Acute Hazard Index	0.0		0.0	0.001
Chronic Hazard Index	0.0		0.0	0.0
Maximum Individual Cancer Risk (10^{-6})	0.0		0.0	0.72
T-BACT Required?	No			
Special Permit Conditions?	Yes			

Proposed Permit Conditions

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

Unit # 25-0, 26-0

During commissioning the turbine shall not be operated at a load greater than 25 percent and the hourly NOx emissions shall not exceed 0.0093 Lbs/MMBtu.

B. RMR REPORT

I. Project Description

Technical Services received a request on September 2011, to perform an Ambient Air Quality Analysis and a Risk Management Review for the installation of two NG turbines and to designate two boilers as standby.

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 0.88 lb/hr CO,

0.6 lb/hr NO_x, 0.18 lb/hr SO_x, and 1.35 lb/hr PM₁₀. The engineer supplied the maximum fuel rate for the turbines 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 ¹	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ²	Pass ²
PM _{2.5}	X	X	X	Pass ²	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. ²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

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

To ensure that human health risks will not exceed District allowable levels; the permit 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

APPENDIX G
Quarterly Net Emissions Change

Quarterly Net Emissions Change (QNEC)

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

$QNEC = PE2 - PE1$, where:

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

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly} = PE2_{annual} \div 4 \text{ quarters/year}$

$PE1_{quarterly} = PE1_{annual} \div 4 \text{ quarters/year}$

S-1346-18-6

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	45	552	-507
SO _x	16	197	-181
PM ₁₀	43	524	-481
CO	420	5,105	-4,685
VOC	31	380	-349

S-1346-19-6

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	45	552	-507
SO _x	16	197	-181
PM ₁₀	43	524	-481
CO	420	5,105	-4,685
VOC	31	380	-349

S-1346-25-0 (Combined emissions divided by two)

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	867	0	867
SO _x	243	0	243
PM ₁₀	1,792	0	1,792
CO	2,677	0	2,677
VOC	341	0	341

S-1346-26-0 (Combined emissions divided by two)

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	867	0	867
SO _x	243	0	243
PM ₁₀	1,792	0	1,792
CO	2,677	0	2,677
VOC	341	0	341

APPENDIX H
Emission Profiles

Permit #: S-1346-18-6	Last Updated
Facility: CALIFORNIA DAIRIES, INC.	04/07/2012 DAHLSTRA

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	181.0	65.0	172.0	1678.0	125.0
Daily Emis. Limit (lb/Day)	6.1	2.2	5.8	55.9	4.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-507.0	-181.0	-481.0	-4685.0	-349.0
Q2:	-507.0	-181.0	-481.0	-4685.0	-349.0
Q3:	-507.0	-181.0	-481.0	-4685.0	-349.0
Q4:	-507.0	-181.0	-481.0	-4685.0	-349.0
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-1346-19-6	Last Updated
Facility: CALIFORNIA DAIRIES, INC.	04/07/2012 DAHLSTRA

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	181.0	65.0	172.0	1678.0	125.0
Daily Emis. Limit (lb/Day)	6.1	2.2	5.8	55.9	4.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-507.0	-181.0	-481.0	-4685.0	-349.0
Q2:	-507.0	-181.0	-481.0	-4685.0	-349.0
Q3:	-507.0	-181.0	-481.0	-4685.0	-349.0
Q4:	-507.0	-181.0	-481.0	-4685.0	-349.0
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-1346-25-0	Last Updated
Facility: CALIFORNIA DAIRIES, INC.	04/07/2012 DAHLSTRA

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	3470.0	973.0	7169.0	10708.0	1365.0
Daily Emis. Limit (lb/Day)	16.9	4.4	32.5	71.1	8.1
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	867.0	243.0	1792.0	2677.0	341.0
Q2:	867.0	243.0	1792.0	2677.0	341.0
Q3:	867.0	243.0	1792.0	2677.0	341.0
Q4:	867.0	243.0	1792.0	2677.0	341.0
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-1346-26-0	Last Updated
Facility: CALIFORNIA DAIRIES, INC.	04/07/2012 DAHLSTRA

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	3470.0	973.0	7169.0	10708.0	1365.0
Daily Emis. Limit (lb/Day)	16.9	4.4	32.5	71.1	8.1
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	867.0	243.0	1792.0	2677.0	341.0
Q2:	867.0	243.0	1792.0	2677.0	341.0
Q3:	867.0	243.0	1792.0	2677.0	341.0
Q4:	867.0	243.0	1792.0	2677.0	341.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

APPENDIX I
Compliance Certification



April, 16, 2012

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 Tipton, 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
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P.O. Box 6210
Artesia, CA 90701
Telephone: 562-865-1291
Fax: 562-860-8633

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
11894 Avenue 120
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Tipton, CA 93272-0837
Telephone: 559-752-5200
Fax: 559-752-5201

TURLOCK
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Turlock, CA 95380
Telephone:
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**CORPORATE OFFICE
VISALIA**
2000 N. Plaza Drive
Visalia, CA 93291
Telephone:
559-625-2200
Fax: 559-625-5433

APPENDIX J
CEQA GHG: Project specific Analysis

CEQA GHG: BPS Determination

Total project emissions of CO₂ are greater than 230 metric tons. Therefore, the new cogens are required to meet the District's Best Performance Standards (BPS).

Evaluation of BPS - Calculation of Emissions Performance Design Standard:

Assumptions:

- Steam Output: 29,800 lb/hr (each cogen) – per applicant.
- Operating Pressure (gauge): 135 psig – per applicant.
- Temperature: Saturated – per applicant.
- Enthalpy (from Steam table): 1194.1 Btu/lb – per applicant.

Calculations:

$$\begin{aligned}\text{Useful Thermal Energy} &= 1194.1 \text{ Btu/lb} \times 29,800 \text{ lb/hr} = 35.58 \text{ MMBtu/hr} \times 1 \\ &\text{MWh}/3.412 \text{ MMBtu} \\ &= 10.43 \text{ MW}\end{aligned}$$

$$\text{Useful Electrical Energy} = 5.7 \text{ MW}$$

$$\text{Total Useful Energy} = 10.43 \text{ MW} + 5.7 \text{ MW} = \mathbf{16.13 \text{ MW}}$$

CO₂ Emissions Calculations

$$\begin{aligned}\text{CO}_2 \text{ Emissions} &= 64.47 \text{ MMBtu/hr} \times 116.7 \text{ lb/MMBtu} \\ &= 7,524 \text{ lb-CO}_2\text{e/hour}\end{aligned}$$

$$\begin{aligned}\text{CH}_4 \text{ Emissions} &= 64.47 \text{ MMBtu/hr} \times 0.011 \text{ lb/MMBtu} \times 21 \text{ lb-CO}_2\text{e per lb-CH}_4 \\ &= 14.9 \text{ lb-CO}_2\text{e/hour}\end{aligned}$$

$$\begin{aligned}\text{N}_2\text{O Emissions} &= 20.12 \text{ MMBtu/hr} \times 0.00022 \text{ lb/MMBtu} \times 310 \text{ lb-CO}_2\text{e per lb-N}_2\text{O} \\ &= 1.4 \text{ lb-CO}_2\text{e/hour}\end{aligned}$$

$$\text{Total CO}_2 \text{ emissions} = 7,524 + 14.9 + 1.4 = 7,540 \text{ lb-CO}_2\text{e/hour}$$

CO₂ Emissions per MWh

$$= 7,540 \text{ lb-CO}_2\text{e/hour} \div 16.13 \text{ MW} = \mathbf{467.5 \text{ lb-CO}_2\text{e per MWh of Useful Energy}}$$

467.5 lb-CO₂e per MWh of useful energy is less than the 800 lb-CO₂e per MWh required by BPS, as listed in the following chart. Therefore, these units meet the District's BPS for cogens fired on natural gas as issued November 1, 2011.

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

Best Performance Standard (BPS) x.x.xx

Date: November 1, 2011

Class and Category	<p style="text-align: center;">Cogeneration – Topping Cycle Plants (not including Combined Cycle units) <u>Subcategories:</u></p> <ol style="list-style-type: none"> 1. Natural Gas-Fired IC Engines 2. Natural Gas-Fired Turbines (not including oilfield cogeneration units) 3. Oilfield Natural Gas-Fired Turbines
Best Performance Standard	<ol style="list-style-type: none"> 1. <u>Natural Gas-Fired IC Engines</u> Emissions Performance Design Standard of 700 lb-CO₂e per MWh of Useful Energy at ISO Conditions 2. <u>Natural Gas-Fired Turbines (not including oilfield cogeneration units)</u> Emissions Performance Design Standard of 800 lb-CO₂e per MWh of Useful Energy at ISO Conditions 3. <u>Oilfield Natural Gas-fired Turbines</u> Emissions Performance Design Standard of 800 lb-CO₂e per MWh of Useful Energy at ISO Conditions
Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions	<ol style="list-style-type: none"> 1. <u>Natural Gas-Fired IC Engines:</u> 36.4% 2. <u>Natural Gas-Fired Turbines (not including oilfield cogeneration units):</u> 27.3% 3. <u>Oilfield Natural Gas-Fired Turbines:</u> 27.3%

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