San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUG 2 3 2011

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

Re: **Proposed Authorities to Construct / Certificate of Conformity (Minor Mod)**
District Facility # C-1121
Project # 1112108

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for Aera Energy LLC, located at the Coalinga Oilfield within the Fresno County heavy oil central stationary source, which has been issued a Title V permit. Aera Energy LLC is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The project authorizes replacement of heat recovery steam generators (HRSGs) and installation of Selective Catalytic Reduction (SCR) on two 52.7 MMBtu/hr ALLISON GM 501-KB5 natural gas-fired turbines driving 4 MW electrical generators.

Enclosed is the engineering evaluation of this application, a copy of the current Title V permit, and proposed Authorities to Construct # C-1121-33-9 and '-34-9 with Certificate 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 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,

for David Warner
Director of Permit Services

Enclosures
cc: Richard Edgehill, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
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AUG 2 3 2011

Tim Parcel
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

Re: Proposed Authorities to Construct / Certificate of Conformity (Minor Mod)
District Facility # C-1121
Project # 1112108

Dear Mr. Parcel:

Enclosed for your review is the District's analysis of your application for Authorities to Construct for the facility identified above. You have requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes replacement of heat recovery steam generators (HRSGs) and installation of Selective Catalytic Reduction (SCR) on two 52.7 MMBtu/hr ALLISON GM 501-KB5 natural gas-fired turbines driving 4 MW electrical generators.

After addressing any EPA comments made during the 45-day comment period, the Authorities to Construct will be issued to the facility with a Certificate 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

Enclosures
cc: Richard Edgehill, Permit Services

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San Joaquin Valley Air Pollution Control District
Authority to Construct
Retrofit Natural Gas Fired Turbines with SCR

Facility Name:	Aera Energy LLC	Date:	August 19, 2011
Mailing Address:	PO Box 11164	Engineer:	Richard Edgehill
	Bakersfield, CA 93389	Lead Engineer:	Allan Phillips
Contact Person:	Tim Parcel and Doug McCormick (Insight Environmental Consultants)		
Telephone:	(559) 935-7418 (TP), (661) 282-2200 (DM), 332-6345 (cell, DM)		
Application #(s):	C-1121-33-9 and '-34-9		
Project #:	1112108		
Deemed Complete:	June 29, 2011		

AUG 23 2011

I. Proposal

Aera Energy LLC (Aera) has requested Authorities to Construct to replace heat recovery steam generators (HRSGs) and install Selective Catalytic Reduction (SCR) on two 52.7 MMBtu/hr ALLISON GM 501-KB5 natural gas-fired turbines driving 4 MW electrical generators. Installation of SCR is proposed solely to comply with District Rule 4703 requirements and replacement of the heat recovery steam generators is not a NSR modifcation. Therefore BACT and offsets are not required. Public notice is also not required.

Start-up/Shutdown and Shakedown Period Provisions

Aera has requested authorization to operate the units with NOx emissions equal to the current daily NOx emission limit during a 90 day shakedown period and during startup and shutdown.

The following conditions are included on the ATCs to address these transition periods:

During an initial shakedown period, except during periods of startup and shutdown, the emissions shall not exceed any of the following limits: 35 ppmvd NOx @ 15% O2 referenced as NO2. The shakedown period shall not exceed 90 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, water-to-fuel ratio, and results of ammonia injection rate monitoring from CMS. These records shall be made readily available for District inspection upon request. [District Rule 2201] N

Startup and shutdown of the gas turbine, as defined in this permit and in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours for startup and two hours for shutdown, per occurrence. Emission concentrations subsequent to this startup period shall not exceed the limits specified in this permit except during shutdown. [40 CFR Subpart A 60.2 and District Rule 4703] Y

Disposition of Outstanding ATCs

There are no outstanding ATCs for C-1121-33 and '-34. PTOs C-1121-33-7 and '-34-7 are included in **Attachment I**.

Aera facility C-1121 has been issued a Title V Permit. This modification can be classified as a Title V minor modification pursuant to Rule 2520, Section 3.20, 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. Aera must apply to administratively amend their Title V permit.

II. Applicable Rules

District Rule 2201 New and Modified Stationary Source Review Rule (04/21/11)
District Rule 2520 Federally Mandated Operating Permit (6/21/01)
District Rule 4001 New Source Performance Standards (4/14/99)

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

40 CFR 60, Subpart KKKK—Standards of Performance for Stationary Combustion Turbines – **not applicable** – turbines were installed after February 18, 2005

District Rule 4101 Visible Emissions (2/17/05)
District Rule 4102 Nuisance (12/17/92)
District Rule 4201 Particulate Matter Concentration (12/17/92)
District Rule 4703 Stationary Gas Turbines
District 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 combustion gas turbines are located within Aera's Fresno County Heavy Oil Central Stationary Source at the following locations:

Equipment Locations				
Permit Unit	Qtr. Section	Section	Township	Range
C-1121-33-07		32	19S	15E
C-1121-34-07		32	19S	15E

The cogeneration facility location is remote and very sparsely populated, and without a K-12 school in the area. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The Coalinga Cogen plant is an un-manned facility. The current configuration of the site consists of two (2) Allison 501-KB5 combustion turbine generators with an ISO electrical generation rating of 3897 kW. Each combustion turbine inlet is equipped with an Evaporative Cooler to enhance the gas turbine performance by cooling the compressor

inlet air temperature. The evaporative coolers are placed into operation at ambient dry bulb temperatures of 65°F and above. The combustion turbines are operated such that the combustion temperature is 1,895 °F with full load operation. Each turbine is also equipped with a once-through (HRSG) and water injection for control of NOx at a water to fuel ratio of 1.0.

Proposed Modifications

The two HRSGs will be replaced with new units equipped with SCR to reduce NOx emissions to an exhaust concentration of 5 ppmv @ 15% O_2. Water injection will continue to be used at a 0.5 (lower) water to fuel ratio. A new ammonia storage tank and injection system with two (2) motor driven feed-water pumps will also be installed. Ammonia flow to the SCR units is anticipated to not exceed 5 lb/hr with a 20 ppm ammonia slip.

Monthly NOx and CO monitoring using portable analyzers will be conducted. Ammonia slip monitoring will be conducted at the same times as NOx and CO monitoring using gas detection tubes.

Equipment diagrams are included in **Attachment II**.

V. Equipment Listing

Pre-Project Equipment Description:

PTO C-1121-33-7: TG-1, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION DRIVING A 4 MW ELECTRICAL GENERATOR

PTO C-1121-34-7: TG-2, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION DRIVING A 4 MW ELECTRICAL GENERATOR

Proposed Modification

ATCs: C-1121-33-9 and '-34-9: REPLACE HEAT RECOVERY STEAM GENERATOR WITH NEW UNIT INCLUDING SELECTIVE CATALYTIC REDUCTION (SCR) WITH AMMONIA TANK AND DELIVERY SYSTEM TO ACHIEVE TO 5 PPMV NOX FOR RULE 4703 COMPLIANCE

Post Project Equipment Description:

PTO C-1121-33-9: TG-1, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM DRIVING A 4 MW ELECTRICAL GENERATOR

PTO C-1121-34-9: TG-1, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION AND A SELECTIVE

CATALYTIC REDUCTION (SCR) SYSTEM DRIVING A 4 MW ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

The cogeneration system will be equipped with SCR for control of NOx emissions. SCR systems selectively reduce NO_X emissions by injecting ammonia (NH_3) into the exhaust gas upstream of a catalyst. Nitrogen oxides, NH_3, and O_2 react on the surface of the catalyst to form molecular nitrogen (N_2) and H_2O. SCR is capable of over 90 percent NO_X reduction.

VII. General Calculations

A. Assumptions

C-1121-33 and '-34

- The combustion gas turbines operate 24 hr/day, 365 days/yr.
- The combustion gas turbines are fired exclusively on gaseous fuels.
- Turbine heat input rating: 52.7 MMBtu/hr
- Natural Gas HHV = 1000 Btu/scf.
- Natural Gas F-Factor = 8,578 dscf/MM Btu (corrected to 60 °F).
- Only NOx emissions will be affected by this project.
- Pre-project lb/day DELs for NOx and CO are not consistent with concentration limits ppmv @ 15% O_2 listed on PTOs C-1121-33-7 and '-33-8 as they were calculated using emissions factors based on manufacturer's exhaust gas flow rate and 40 ppmv NOx and 38 ppmv CO with no oxygen correction (Appendix B Project C1121, 1021687) (**Attachment III**). Pre-project DELs were corrected accordingly for PE1.
- Pre-project DELs for PM10 and VOC listed on PTOs C-1121-33-7 and '-33-8 were calculated using outdated emissions factors (Appendix B Project C1121, 1021687). These emissions factors are updated consistent with District policy APR 1110 to AP-42 Table 3.1-2a, "Emissions Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Stationary Gas Turbines." (see **Attachment IV**)
- Post project NOx emissions will be limited to the proposed permit limits of 5 ppmv @ 15%O_2.
- Ammonia slip will be limited to 20 ppmv @ 15% O_2 (proposed).

B. Emission Factors

Pre-Project

Emission Factors*			
Pollutant	**Emission Factors**		**Source**
NO_X	0.128 lb/MMBtu*	35 ppmv @ 15% O_2	Proposed
SO_X	0.00285 lb/MMBtu	1.0 grain-S/100 scf	District Standard for PUC-quality natural gas in District policy APR 1720
PM_{10}	0.0066 lb/MMBtu		AP-42 Table 3.1-2a (4/00)
CO	0.085 lb/MMBtu*	38 ppmv @ 15% O_2	Proposed
VOC	0.0021 lb/MMBtu		AP-42 Table 3.1-2a (4/00)

*0.128 lb-NOx/mmbtu = (35 ppmvd/10^6)(8,578 dscf/MMBtu)(lb-mol/379.6 ft3)(46 lb/lb-mol)[20.95/(20.95-15)]

0.085 lb-CO/mmbtu = (38 ppmvd/106)(8,578 dscf/MMBtu)(lb-mol/379.6 ft3)(28 lb/lb-mol)[20.95/(20.95-15)]

Post-Project

Emission Factors*			
Pollutant	**Emission Factors**		**Source**
NO_X	0.0183 lb/MMBtu*	5 ppmv @ 15% O_2	Proposed
NH3	0.027 lb/MMBtu**	20 ppmv @ 15% O_2	Proposed

**0.0183 lb-NOx/mmbtu = (5 ppmvd/10^6)(8,578 dscf/MMBtu)(lb-mol/379.6 ft^3)(46 lb/lb-mol)[20.95/(20.95-15)]*

***0.027 lb-NH3/mmbtu = (20 ppmvd/10^6)(8,578 dscf/MMBtu)(lb-mol/379.6 ft^3)(17 lb/lb-mol)[20.95/(20.95-15)]*

C. Calculations

1. Pre-Project Potential to Emit (PE1)

C-1121-33 and '-34 (each)

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO_X	0.128	52.7	24	161.9
SO_X	0.00285	52.7	24	3.6
PM_{10}	0.0066	52.7	24	8.3
CO	0.085	52.7	24	107.5
VOC	0.0021	52.7	24	2.7

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO_X	0.128	52.7	8,760	59,091
SO_X	0.00285	52.7	8,760	1,316
PM_{10}	0.0066	52.7	8,760	3,047
CO	0.085	52.7	8,760	39,240
VOC	0.0021	52.7	8,760	969

2. Post-Project Potential to Emit (PE2)

C-1121-33 and '-34 (each)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_X	0.0183	52.7	24	see below
SO_X	0.00285	52.7	24	3.6
PM_{10}	0.0066	52.7	24	8.3
CO	0.085	52.7	24	107.5
VOC	0.0021	52.7	24	2.7

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_X	0.018	52.7	8,760	8,448
SO_X	0.00285	52.7	8,760	1,316
PM_{10}	0.0066	52.7	8,760	3,047
CO	0.085	52.7	8,760	39,240
VOC	0.0021	52.7	8,760	969

Startup/Shutdown

NOx: 0.128 lb/MMBtu x 52.7 MMBtu/hr x 4 hr/day + 0.0183 x 52.7 MMBtu/hr x 20 hr/day = 46.3 lb/day

Ammonia Emissions

NH_3: 0.0135 lb/MMBtu x 52.7 MMBtu/hr x 24 hr/day = 17.1 lb/day (6232 lb/yr)
HRA based on 5 lb/hr NH3 and 43,800 lb/yr

Greenhouse Gas Emissions

The project results in no increase in Greenhouse Gas Emissions.

The emissions profiles are included in **Attachment V**.

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.

Aera stipulates that the facility is a major stationary source for all air pollutants; therefore, tabulation of the SSPE1 is not required for this project.

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.

Aera stipulates that the facility is a major stationary source for all air pollutants; therefore, tabulation of the SSPE2 is not required for this project.

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)	>20,000	>140,000	>140,000	>200,000	>20,000
Post Project SSPE (SSPE2)	>20,000	>140,000	>140,000	>200,000	>20,000
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	yes	yes	yes	yes	yes

6. Baseline Emissions (BE)

As discussed in Section VIII below, this project is exempt from offsets requirements pursuant to Rule 2201, Section 4.2; therefore, calculation of the baseline emissions is not required for this project.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that

would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is a major source for NOx. SOx, PM10, and VOCs, the project's PE2s 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	2 x 8448 = 16,896	50,000	No
SO_x	2 x 1316 = 2,632	80,000	No
PM_{10}	2 x 3047 = 6094	30,000	No
VOC	2 x 969 = 1938	50,000	No

8. Federal Major Modification

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

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

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

Pollutant	Threshold (lb/year)
VOC	0
NOx	0
PM10	30,000
SOx	80,000

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

Net Emission Increase for New Unit (NEI)

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

NEI = PE2 - BAE

BAE = 0 for the new emissions unit; therefore,

District draft policy "Implementation of Rule 201 for SB 288 Major Modifications and Federal Major Modifications" states that "for modifications to existing emission units solely for District, State, or Federal rule compliance, where there are no changes in the capacity of the unit, the default assumption is that the modification will not allow the emission unit to operate at a higher utilization rate. For such projects, the emission increase is presumed to be 0 for all pollutants and therefore the project is not a Federal Major Modification.

9. Quarterly Net Emissions Change (QNEC)

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

Quarterly NEC for Unit C-1121-33 and '-34 (each)			
Pollutant	PE2 (lb/yr)	BE (lb/yr)	QNEC (lb/qtr)
NO_x	8,448	59,091	-12,661
SO_x	1,316	1,316	0
PM_{10}	3,047	3,047	0
CO	39,240	39,240	0
VOC	969	969	0

VIII.Compliance

District Rule 2201New and Modified Stationary Source Review Rule

Replacement of HRSGs on units C-1121-33 and '-34 does not meet the following criteria for a Modification, as defined in Section 3.26:

• Any change in hours of operation, production rate, or method of operation of an existing emissions unit, which would necessitate a change in permit conditions.
• Any structural change or addition to an existing emissions unit which would necessitate a change in permit conditions. Routine replacement shall not be considered to be a structural change.
• An increase in emissions from an emissions unit caused by a modification of the Stationary Source when the emissions unit is not subject to a daily emissions limitation.
• Addition of any new emissions unit which is subject to District permitting requirements.
• A change in a permit term or condition proposed by an applicant to obtain an exemption from an applicable requirement to which the source would otherwise be subject.

Therefore this change has no NSR implications i.e. the project is solely for District Rule 4703 compliance.

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

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

However, BACT shall not be required for the following:

4.2.3 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from

Best Available Control Technology for all air pollutants, provided all of the following conditions are met:

4.2.3.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;

4.2.3.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

4.2.3.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and

4.2.3.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM10, or 50 tons per year of CO.

4.2.3.5 The project shall not constitute a Federal Major Modification.

Therefore, each of the above-listed criteria are met, and BACT is not triggered for any pollutant.

B. Offsets

1. Offset Applicability

The proposed modifications are solely for compliance with Rule 4320, and are exempt from offsets if the following criteria are satisfied. Rule 2201, Section 4.6.8 provides the following exemption from offsets.

Emission offsets shall not be required for the following:

4.6.8 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from offset requirements for all air pollutants provided all of the following conditions are met:

4.6.8.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;

4.6.8.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

4.6.8.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of

Significant Deterioration increment, or Air Quality Related Value in Class I areas; and

4.6.8.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM-10, or 50 tons per year of CO.

4.6.8.5 The project shall not constitute a Federal Major Modification.

Since the above-listed criteria are met, offsets are not triggered for any pollutant.

C. Public Notification

1. Applicability

Public noticing is required for:

a. New Major Sources and Major Modifications,
b. Applications which include a new emissions unit with a Potential to Emit greater than 100 lb/day for any one pollutant,
c. Modifications that increase the pre-project stationary source potential to emit (SSPE1) from a level below the emission offset threshold level to a level exceeding the emission offset threshold level for one or more pollutants,
d. New stationary sources with post-project stationary source potential to emit (SSPE2) exceeding the emissions offset threshold level for one or more pollutants; and
e. Any permitting action resulting in a stationary source project increase in permitted emissions (SSIPE) exceeding 20,000 lb/yr for any one pollutant.

a. New Major Sources and 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.

This project does not result in a SB 288 Major Modification of a Major source; therefore, public noticing is required for this project for SB 288 Major Modification purposes.

This project does result in a Federal Major Modification of a Major source; therefore, public noticing is required for this project for Federal Major Modification purposes.

b. PE > 100 lb/day

As seen in Section VII.C.2 above, this project does not include new emissions units which have daily emissions greater than 100 lb/day for any

pollutant; therefore, public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_X	>20,000 lb/year	>20,000 lb/year	20,000 lb/year	No
SO_X	>54,750 lb/year	>54,750 lb/year	54,750 lb/year	No
PM_{10}	>29,200 lb/year	>29,200 lb/year	29,200 lb/year	No
CO	>200,000 lb/year	>200,000 lb/year	200,000 lb/year	No
VOC	>20,000 lb/year	>20,000 lb/year	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	>20,000 lb/year	>20,000 lb/year	-50,643	20,000 lb/year	No
SO_x	>54,750 lb/year	>54,750 lb/year	0	20,000 lb/year	No
PM_{10}	>29,200 lb/year	>29,200 lb/year	0	20,000 lb/year	No
CO	>200,000 lb/year	>200,000 lb/year	0	20,000 lb/year	No
VOC	>20,000 lb/year	>20,000 lb/year	0	20,000 lb/year	No

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

2. Public Notice Action

As discussed above, this project will not result in emissions, for any pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project.

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

Except during periods of startup, shutdown, and shakedown, emissions rates (three hour rolling average) shall not exceed any of the following: NOx (as NO2): 5 ppmv dry @ 15% O2, CO: 38 ppmv dry @ 15% O2. [District Rule 4703, 5.1.2, 5.2] Y

Emissions shall not exceed any of the following limits: NOx (as NO2); 46.3 lb/day, CO: 107.5 lb/day, PM10: 8.3 lb/day; SOx (as SO2): 3.6 lb/day or VOC: 2.7 lb/day. [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

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 NOx, CO and NH3 emissions.

A source test to demonstrate compliance with NOx, CO, and NH3 emission limits, and fuel sulfur content shall be performed within 60 days after the shakedown period has been completed for this modified unit. The appropriate ammonia injection rate, fuel consumption, ammonia to fuel ratio, water to fuel ratio, and any other associated operating parameter shall be continuously monitored and recorded during this test to establish acceptable operating ranges. Selective Catalytic Reduction (SCR) 95% control efficiency may be demonstrated as an alternative to compliance with the Rule 4703 NOx emissions concentration limit. [District Rules 2201, 40 CFR 60.334(g), 40 CFR 60.335(b), and 4703] Y

2. Monitoring

Monthly monitoring of NOx, CO, and NH3 exhaust concentrations with a portable analyzer for NOx and CO is proposed.

Permittee shall install and operate a system which continuously measures and records elapsed time of turbine operation. [District Rule 40 CFR 60.334(a) and District Rule 4703] Y

Gas temperature at SCR catalyst section inlet shall be continuously monitored by operational temperature indicator. Inlet gas temperature to catalyst bed shall be maintained within range recommended by catalyst manufacturer and determined by performance tests. [40 CFR 60.334(a) and District Rule 4703, 6.2.1] Y

Permittee shall install, operate and maintain in calibration a system which continuously measures and records ammonia injection flow rate, monitors ammonia pressure, and sounds an alarm if outside the acceptable operating pressure range. Ammonia injection flow rate and pressure shall be operated within the range recommended by SCR manufacturer and determined by performance tests such that the turbine maintains 95% or greater control efficiency or complies with the applicable NOx emission concentration limit. [District Rule 40 CFR 60.334(a) and District Rule 4703] Y

The permittee shall monitor and record the stack concentration of NOx, CO, NH3, and O2 at least once every month in which a source test is not performed. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes or a District approved equivalent method. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the previous calendar month. [District Rule 4703]

If the NOx or CO concentrations corrected to 15% 02 as measured by the portable analyzer or the NH3 concentration, as measured by gas detection tubes or a District approved equivalent method, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continues to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 4703]

All NOx, CO, 02 and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and 02 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4703]

3. Recordkeeping

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

The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and 02 measurements, (2) the 02 concentration in percent by volume and the measured NOx, CO and NH3 concentrations corrected to 3% 02, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rule 4703]

Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption for normal operation and for the startup/shutdown periods. This information may be recorded electronically. Daily entries in the operating log are not required for periods of non-operation. [District Rules 2520, 9.4.2 & 4703, 6.2.4]

Permittee shall maintain accurate records of all maintenance activities, periodic inspections, and repairs of SCR unit, water and NH3 injection systems, and their associated controller and instrumentation units. [District Rules 1070 and 4703]

The owner or operator shall maintain all records for a period of five years from the date of entry and shall make such records available to the APCO upon request. [District Rules 1080, 2201, & 4703, 6.2.4] Federally Enforceable Through Title V Permit

4. Reporting

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

Compliance is expected with this Rule.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. The proposed modification is a Minor Modification to the Title V Permit pursuant to Section 3.20 of this rule:

In accordance with Rule 2520, 3.20, these modifications:

1. Do not violate requirements of any applicable federally enforceable local or federal requirement;
2. Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;
3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
4. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
    a. A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act; and
    b. An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and

5. Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act; and
6. Do not seek to consolidate overlapping applicable requirements.

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 may construct/operate under the ATC upon submittal of the Title V administrative amendment application.

Rule 4001 New Source Performance Standards

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

§60.332 Standard for NOx:

§60.332(c) requires that a stationary gas turbine with a heat input rate greater than 10 MMBtu/hr but less than or equal to 100 MMBtu/hr shall comply with the NOx emission limit calculated using the following equation:

$STD = 0.0150\frac{(14.4)}{Y} + F$; where

STD = allowable ISO corrected NOx emission concentration in % by volume @ 15% O_2 on dry basis

Y = Manufacturer's rated heat rate at manufacturer's rated load (kJ/w-hr) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The Y shall not exceed 14.4 kJ/w-hr.

F = NO_x emission allowance for fuel-bound nitrogen.

Heat input rate = 52.7 x 10^6 Btu/hr
Power Rating = 4.0 MW

$$Y = \left(52.7\times10^{6}\frac{Btu}{hr}\right)\times\left(\frac{1\,\text{kJ}}{0.9478\,\text{Btu}}\right)\times\left(\frac{1}{4.0\times10^{6}\,w}\right)=13.9\frac{\text{kJ}}{\text{w - hr}}$$

Since Y exceeds 14.4 kJ/w-hr, Y is set equal to 14.4 kJ/w-hr.

F= 0; for conservative calculations

$STD = 0.0150\frac{(14.4)}{13.9} + 0 = 0.016$ % by volume @ 15% O_2 (160 ppmv @ 15% O_2)

Aera is required to demonstrate compliance with 5 ppmvd @ 15% O_2 on 1-hour rolling average basis. Therefore, units '-33 and '-34 are expected to operate in compliance with the NOx standards.

§60.333 Standard for SOx:

§60.333(a) requires that emissions of sulfur dioxide shall not exceed 0.015 percent by volume dry @ 15% O_2 (150 ppmvd @ 15% O_2).

The 150 ppmvd @ 15% O_2 limit specified in §60.333(a) is equivalent to 0.764 lb-SO_2/MMBtu. This number determined as follows:

$$\frac{\left(150\times10^{-6}\right)\times\left(8{,}578\,\frac{ft^3}{MMBtu}\right)\times\left(64\,\frac{lb-SO_2}{lb-mol}\right)\times\left(\frac{20.95}{20.95-15}\right)}{\left(379.5\,\frac{ft^3}{lb-mol}\right)} = 0.764\,\frac{lb-SO_2}{MMBtu}$$

The permitted emission factor is 0.00285 lb/MMBtu. Thus, compliance is expected with §60.333(a).

(b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains total sulfur in excess of 0.8 percent by weight (8000 ppmw).

Fuel gas sulfur content shall not exceed 1.0 gr S/100 scf as total fuel sulfur. [District Rule 2201] Y

§60.334(a) states

(a) Except as provided in paragraph (b) of this section, the owner or operator of any stationary gas turbine subject to the provisions of this subpart and using water or steam injection to control NOX emissions shall 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. The current PTOs and ATCs include the following condition:

Permittee shall install, operate and maintain in calibration, to within 5% accuracy, a monitoring system which continuously measures and records the water-to-fuel ratio and fuel consumption and which correlates the water-to-fuel ratio during initial source testing with the NOx concentration in the exhaust. [District NSR Rule, Rule 4703, 6.2.2 and 40 CFR 60.334(a)] Y

(b) through (f) not applicable

(g) The steam or water to fuel ratio or other parameters that are continuously monitored as described in paragraphs (a), (d) or (f) of this section shall be monitored during the performance test required under §60.8, to establish acceptable values and ranges. The owner or operator may supplement the performance test data with engineering analyses, design specifications, manufacturer's recommendations and other relevant information to define the acceptable parametric ranges more precisely. The owner or operator shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NOX emission controls. The plan shall include the parameter(s) monitored and the acceptable range(s) of the parameter(s) as well as the basis for designating the parameter(s) and acceptable range(s). Any supplemental data such as engineering analyses, design specifications,

manufacturer's recommendations and other relevant information shall be included in the monitoring plan.

The following condition is included on the ATC:

A source test to demonstrate compliance with NOx, CO, and NH3 emission limits, and fuel sulfur content shall be performed within 60 days after the shakedown period has been completed for this modified unit. The appropriate ammonia injection rate, fuel consumption, ammonia to fuel ratio, water to fuel ratio, and any other associated operating parameter shall be continuously monitored and recorded during this test to establish acceptable operating ranges. Selective Catalytic Reduction (SCR) 95% control efficiency may be demonstrated as an alternative to compliance with the Rule 4703 NOx emissions concentration limit. [District Rules 2201, 40 CFR 60.334(g), 40 CFR 60.335(b), and 4703] Y

§60.334(h)(3)(i) and (ii) requires the following:

(3) Notwithstanding the provisions of paragraph (h)(1) of this section, the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration:

(i) The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or

(ii) Representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required.

The current PTOs and ATCs include the following condition:

If this unit is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3) and District Rule 1070] Y

§60.334(j) For each affected unit that elects to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content or fuel nitrogen content under this subpart, the owner or operator shall submit reports of excess emissions and monitor downtime, in accordance with §60.7(c). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown and malfunction. For the purpose of reports required under §60.7(c), periods of excess emissions and monitor downtime that shall be reported are defined as follows:

(1) Nitrogen oxides.

(i) For turbines using water or steam to fuel ratio monitoring:

(A) An excess emission shall be any unit operating hour for which the average steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the acceptable steam or water to fuel ratio needed to demonstrate compliance with §60.332, as established during the performance test required in §60.8. Any unit operating hour in which no water or steam is injected into the turbine shall also be considered an excess emission.

(B) A period of monitor downtime shall be any unit operating hour in which water or steam is injected into the turbine, but the essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid.

(C) Each report shall include the average steam or water to fuel ratio, average fuel consumption, ambient conditions (temperature, pressure, and humidity), gas turbine load, and (if applicable) the nitrogen content of the fuel during each excess emission. You do not have to report ambient conditions if you opt to use the worst case ISO correction factor as specified in §60.334(b)(3)(ii), or if you are not using the ISO correction equation under the provisions of §60.335(b)(1).

The current PTOs and ATCs include the following condition:

The owner or operator shall report periods of excess emissions that are defined as follows: any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with the NOx emission limit. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, and gas turbine load. [40 CFR 60.334(j)(1)(i)] Y

§60.334(j)(2)(i) states for samples of gaseous fuel and for oil samples obtained using daily sampling, flow proportional sampling, or sampling for the unit's storage tank, an excess sulfur dioxide emissions occurs each unit operating hour included in the period beginning on the date and hour of any sample for which sulfur content of the fuel fired in the gas turbine exceeds 0.8% (by weight) and ending on the date and hour that a subsequent sample is taken that demonstrate compliance with the sulfur limit.

Units C-1121-33 and '-34 have been permitted with a SOx emission rate of 0.00285 lb/MMBtu. Therefore, it is not necessary to define a less stringent limit.

§60.334(j)(2)(ii) defines excess sulfur dioxide emissions when each delivery of fuel oil has been selected. The turbine is fired exclusively on natural gas fuel. Thus, requirements of this section are not applicable.

§60.334(j)(2)(iii) defines monitor downtime for sulfur dioxide emissions occur when a required sample is not taken by its due date. Monitor downtime also begins if invalid results are obtained for a fuel sample.

Aera is not using sulfur dioxide monitors, and the turbine is exclusively fired on natural gas fuel. Therefore, it is not necessary to define monitor down for sulfur dioxide emissions.

§60.334(j)(5) requires the owner or operator to postmarked the reports required under §60.7(c) by the 30th day following the end of each 6-month period. The permittee is

required to submit quarterly reports, as it is required by District Rule 1080. The units are not equipped with CEMs Therefore this section is not applicable.

§60.335 Test Methods and Procedure

§60.335(a) states that the owner or operator shall conduct the performance tests required in §60.8 using EPA Method 20, ASTM D6522-00 or EPA Method 7E and either EPA Method 3 or 3A to determine NOx and diluent concentration. Sampling traverse points are to be selected following Method 20 or Method 1. The following condition will be placed on each permit.

The following test methods shall be used: NOx (ppmv) - EPA Method 7E or 20, CO (ppmv) - EPA Method 10 or 10B, stack gas oxygen - EPA Method 3 or 3A or 20, fuel gas sulfur content - ASTM D1072, D4468, or D3246 or double GC for H2S and mercaptans, fuel gas HHV and LHV - ASTM D3598, D1826 or D1945, Ammonia slip - BAAQMD method ST-1B. [40 CFR 60.335(b) and District Rules 1081 & 4703]

§60.335(b)(1) states that for each run of the performance test, the mean nitrogen oxide emission concentration @ 15% O_2 shall be corrected to ISO standard conditions using the equation listed in this section to demonstrate compliance with NSPS NOx standard. NOx correction to ISO standard is optional for the units equipped with add-on emissions control devices. Therefore, ISO correction is not mentioned in the above condition.

§60.335(b)(2) is applicable to units equipped with CEMs and therefore is not applicable.

§60.335(b)(3) states that for a combined cycle turbine system with duct burner, the owner may elect to measure turbine NOx emissions after the duct burner rather than directly after turbine. The turbines under this project are not equipped with supplemental heat or duct burner. Therefore, no further discussion is required.

§60.335(b)(4) states that if water or steam injection is used to control NOx with no additional post-combustion NOx control and the owner or operator chooses to monitor the steam or water to fuel ratio then that monitoring system must be operated with each performance test run to determine the fuel consumption and the steam or water to fuel ratio to demonstrate on-going compliance with the NOx standard.

The turbine is equipped with an SCR system in addition to water injection. Therefore, the permittee is not required to monitor fuel consumption and water or steam injection during a performance test.

§60.335(b)(5) states that if the owner elects to claim an emission allowance for fuel bound nitrogen, then concurrently with each reference method run, a representative sample of the fuel used shall be collected and analyzed following the applicable procedure described in §60.335(b)(9). These data shall be used to determine the maximum fuel nitrogen content for which the established water or steam to fuel ratio will be valid.

Per http://www.naturalgas.org/overview/background.asp, nitrogen content in a natural gas varies between 0-5%. There would not be any significant variation in the NOx emission limit if the permittee was given an allowance for fuel bound nitrogen. Furthermore, the proposed NOx emission limit of 5.0 ppmvd NOx @ 15% O2 (required

by Rule 4703) accounts for the fuel bound nitrogen. Given that this limit is more stringent than that of the NSPS NOx emission limit, allowance for fuel bound nitrogen is not considered for this project.

§60.335(b)(6) states that if the owner or operator elects to install a CEMS, the performance evaluation of CEMS may either be conducted separately or as part of the initial performance test of the affected unit as described in paragraph (b)(7). The units are not equipped with CEMs. Therefore this section is not applicable.

§60.335(b)(7), (b)(8), (b)(9) are not applicable to the turbine in this project.

§60.335(b)(10) if the owner or operator is required to determine the sulfur content of the fuel combusted in the turbine then a minimum of three fuel samples shall be collected during the performance test.

The turbine combusts natural gas with a sulfur content not exceeding 1.0 gr/100scf.

Compliance is expected with this Subpart.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the heater S-39-31 and cogens S-39-50 and '-56 are fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Also, based on past inspections of the facility continued compliance is expected.

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

An HRA was conducted to evaluate the impact of ammonia slip. There results in **Attachment VI** indicate that the project is approvable with the proposed ammonia emissions (< 5 lb/hr ammonia injection and 10 ppmv ammonia slip).

District Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot. Unit C-1121-33 and '34 combust natural gas only. Continued compliance is expected.

District Rule 4703 Stationary Gas Turbines

The purpose of this rule is to limit oxides of nitrogen (NOx) emissions from stationary gas turbine systems. Section 5.1.3 of the rule limits NOx emissions to 9 ppmv @ 15% O_2. NOx emissions from the cogen (S-39-50) are limited to 9 ppmv @ 15 % O_2 per the Permit to Operate; therefore, compliance with this rule is expected.

Table 5-3: Tier 3 NOx Compliance Limits

Turbine Classification Rating	NOx Compliance Limit, ppmvd at 15% O_2	
	Gas Fuel	Liquid Fuel
a) 3 MW to 10 MW and permit condition for 877 hrs/yr operation or greater	5	25

The CO emissions limit (38 ppmv @ 15% O2) is also in compliance with the rule.

Table 5-4 : CO Compliance Limits

Stationary Gas Turbine	CO Compliance Limit, ppmv at 15% O_2
Units not identified below	200

These emissions limits are stated in the following ATC condition:

Except during periods of startup, shutdown, and shakedown, emissions rates (three hour rolling average) shall not exceed any of the following: NOx (as NO2): 5 ppmv dry @ 15% O2, CO: 38 ppmv dry @ 15% O2. [District Rule 4703, 5.1.2, 5.2] Y

5.3 Transitional Operation Periods

On and after the date a unit is required, pursuant to Section 7.0, to be in compliance with the emission limits requirements of Section 5.1 or Section 5.2, the applicable emission limits of Section 5.1 and Section 5.2 shall not apply during a transitional operation period, as defined in Section 3.0, provided an operator complies with the applicable requirements specified in Sections 5.3.1 and 5.3.2.

5.3.1 Except as provided in Section 5.3.3, the operator shall meet the following conditions:

5.3.1.1 The duration of each start-up or each shutdown shall not exceed two hours.

Startup and shutdown of the gas turbine, as defined in this permit and in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours for startup and two hours for shutdown, per occurrence. Emission concentrations subsequent to this startup period shall not exceed the limits specified in this permit except during shutdown. [40 CFR Subpart A 60.2 and District Rule 4703] Y

5.3.1.2 For each bypass transition period, the requirements specified in Section 3.2 shall be met.

Applicant has not proposed a bypass transition period and therefore it has not been addressed.

5.3.1.3 For each primary re-ignition period, the requirements specified in Section 3.20 shall be met.

5.3.1.4 Each reduced load period shall not exceed one hour.

The duration of reduced load shall not exceed a time period of one hour per occurrence. [District Rule 4703]

5.3.2 The emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during each transitional operation period.

The emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during each transitional operation period. [District Rule 4703]

5.3.3 Notwithstanding the requirement of Section 5.3.1, an operator may submit an application for a Permit to Operate condition to allow more than the duration of time specified in Section 5.3.1 for each transitional operation period provided the operator meets all of the conditions specified in Section 5.3.3.1 through Section 5.3.3.2.

Applicant has not requested a longer startup and shutdown period. A 90-day shakedown period has been requested.

During an initial shakedown period, except during periods of startup and shutdown, the emissions shall not exceed any of the following limits: 35 ppmvd NOx @ 15% O2 referenced as NO2. The shakedown period shall not exceed 90 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, water-to-fuel ratio, and results of ammonia injection rate monitoring from CMS. These records shall be made readily available for District inspection upon request. [District Rule 2201] Y

5.3.3.1 The maximum allowable duration of a transitional operation period will be determined by the APCO, ARB, and EPA. An operator seeking approval pursuant to Section 5.3.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request.

During an initial shakedown period, except during periods of startup and shutdown, the emissions shall not exceed any of the following limits: 35 ppmvd NOx @ 15% O2 referenced as NO2. The shakedown period shall not exceed 90 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, water-to-fuel ratio, and results of ammonia injection rate monitoring from CMS. These records shall be made readily available for District inspection upon request. [District Rule 2201] Y

5.4 For existing facilities, a replacement unit installed for the sole purpose of complying with the requirements of this rule shall be considered to be an emission control technique and may be exempt from the Best Available Control Technology (BACT) and Offsets requirements of District Rule 2201 (New and Modified Stationary Source Review Rule) provided that all other requirements of Rule 2201 are met.

The units are not replacements. This section is not applicable.

As proposed NOx and CO emissions limits are in compliance, the units comply with from the emission control plan requirements of Section 6.1.

Pursuant to Section 6.2 Monitoring and Recordkeeping the owner or operator of any stationary gas turbine system subject to the provisions of this rule shall perform the following actions:

Except for units subject to Section 6.2.3, for turbines with exhaust gas NOx control devices, the owner or operator shall either install, operate, and maintain continuous emissions monitoring equipment for NOx and oxygen, as identified in Rule 1080 (Stack Monitoring), or install and maintain APCO-approved alternate monitoring consisting of one or more of the following:
6.2.1.1 periodic NOx emission concentrations,
6.2.1.2 turbine exhaust oxygen concentration,
6.2.1.3 air-to-fuel ratio,
6.2.1.4 flow rate of reducing agents added to turbine exhaust,
6.2.1.5 catalyst inlet and exhaust temperature,
6.2.1.6 catalyst inlet and exhaust oxygen concentration,
6.2.1.7 other operational characteristics.

Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [40 CFR 60.334(a) and District Rule 4703] Federally Enforceable Through Title V Permit

Gas temperature at SCR catalyst section inlet shall be continuously monitored by operational temperature indicator. Inlet gas temperature to catalyst bed shall be maintained within range recommended by catalyst manufacturer and determined by performance tests. [40 CFR 60.334(a) and District Rule 4703]

Permittee shall install, operate and maintain in calibration a system which continuously measures and records ammonia injection flow rate and pressure. Ammonia injection flow rate and pressure shall be operated within the range recommended by SCR manufacturer and determined by performance tests such that the turbine maintains 95% or greater control efficiency or complies with the applicable NOx emission concentration limit. [40 CFR 60.3 34(a) and District Rule 4703]

The permittee shall monitor and record the stack concentration of NOx, CO, NH3, and O2 at least once every month in which a source test is not performed. NOx, CO and O2 monitoring shall be conducted

utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes or a District approved equivalent method. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the previous calendar month. [District Rule 4703]

If the NOx or CO concentrations corrected to 15% 02 as measured by the portable analyzer or the NH3 concentration, as measured by gas detection tubes or a District approved equivalent method, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continues to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 4703]

All NOx, CO, 02 and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and 02 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4703]

The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and 02 measurements, (2) the 02 concentration in percent by volume and the measured NOx, CO and NH3 concentrations corrected to 3% 02, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rule 4703]
Operator shalt maintain a stationary gas turbine operating log that includes, on a daily basis the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption for normal operation and for the startup/shutdown periods. This information may be recorded electronically. Daily entries in the operating log are not required for periods of non-operation. [District Rules 2520, 9.4.2 & 4703, 6.2.4]

6.2.2 Except for units subject to Section 6.2.3, for turbines without exhaust-gas NOx control devices and without continuous emissions monitoring equipment, the owner or operator shall monitor operational characteristics recommended by the turbine manufacturer or emission control system supplier, and approved by the APCO.

Not applicable to units with SCR.

6.2.3 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 NOx emissions. The NOx monitoring system shall meet EPA requirements as specified in 40 CFR Part 60 App. B, Spec. 2, 40 CFR Part 60 App. F, and 40 CFR Part 60.7 (c), 60.7 (d), and 60.13, or other systems that are acceptable to the EPA. The owner or operator shall submit to the APCO information demonstrating that the emission monitoring system has data gathering and retrieval capability.

6.2.4 The owner or operator shall 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.

The owner or operator shall maintain all records for a period of five years from the date of entry and shall make such records available to the APCO upon request. [District Rules 1080, 2201, & 4703, 6.2.4] Federally Enforceable Through Title V Permit

6.2.5 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 measured NOx output. This information may be used by the APCO to determine compliance when there is no continuous emission monitoring system for NOx available or when the continuous emission monitoring system is not operating properly.

6.2.6 The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up time and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used (liquid/gas).

Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption for normal operation and for the startup/shutdown periods. This information may be recorded electronically. Daily entries in the operating log are not required for periods of non-operation. [District Rules 2520 & 4703] Y

6.2.7 The owner or operator shall maintain a stationary gas turbine system operating log for units exempt under Section 4.2 that includes, on a daily basis, the actual local start-up time and stop time, total hours of operation, and cumulative hours of operation to date for the calendar year.

This section is not applicable as units are not exempt.

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

Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption for normal operation and for the startup/shutdown periods. This information may be recorded electronically. Daily entries in the operating log are not required for periods of non-operation. [District Rules 2520 & 4703] Y

6.2.9 On and after January 1, 2008, an operator of a unit subject to Section 5.1.3.3 shall also keep the following records:

6.2.9.1 A stationary gas turbine system operating log, which identifies the date, start time, and end time that the unit was operated pursuant to Section 5.1.3.3,

6.2.9.2 A copy of the ISO or TID emergency declaration for that operation and

6.2.9.3 A copy of the information used to determine the applicable Annual Emission Fee.

6.2.10 The operator of a unit subject to Section 6.5.2 shall identify in the stationary gas turbine system operating log the date and start time and end time that the unit was operated pursuant to Section 6.5.2 and keep a copy of the emergency declaration.

6.2.11 The operator of a unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period.

6.2.12 The operator of a unit subject to subsection (b) of Table 5-3 shall keep records of the date, time and duration of each steady state period and non-steady state period and the quantity of fuel used during each period.

Aera is proposing to comply with the requirements of Section 6.2 by monitoring the stack emissions on a monthly basis. The following conditions are proposed for inclusion in the proposed permits.

Permittee shall maintain accurate records of all maintenance activities, periodic inspections, and repairs of SCR unit, water and NH3 injection systems, and their associated controller and instrumentation units. [District Rules 1070 and 4703]

District Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO_2, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

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

With:

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

$$\frac{0.00285\,lb-SOx}{MMBtu} \times \frac{MMBtu}{8{,}578\,dscf} \times \frac{1\,lb \cdot mol}{64\,lb} \times \frac{10.73\,psi \cdot ft^3}{lb \cdot mol \cdot °R} \times \frac{520°R}{14.7\,psi} \times \frac{1{,}000{,}000 \cdot parts}{million} = 2.0\,\frac{parts}{million}$$

$$SulfurConcentration = 2.0\,\frac{parts}{million} < 2{,}000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

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

for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

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.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authorities to Construct C-1121-33-9 and '-34-9 subject to the permit conditions on the attached draft Authority to Construct in **Attachment IV**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-1121-33	3020-08-A C	4000 GTE power generation	$1533.00
C-1121-34	3020-08-A C	4000 GTE power generation	$1533.00

Attachments
I: PTOs C-1121-33-7 and '-34-7
II: Equipment Diagrams
III: Pre-Project Emissions Calculations
IV: AP-42 Emissions Factors
V: Emissions Profiles
VI: HRA
VII: Draft ATC

ATTACHMENT I
PTOs C-1121-33-7 and '-34-7

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-1121-33-7 **EXPIRATION DATE:** 12/31/2006

SECTION: 32 **TOWNSHIP:** 19S **RANGE:** 15E

EQUIPMENT DESCRIPTION:
TG-1, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION DRIVING A 4 MW ELECTRICAL GENERATOR

PERMIT UNIT REQUIREMENTS

1. Unit shall be exclusively fired with natural gas containing no more than 1 grain of total sulfur per 100 standard cubic feet of gas. [District NSR Rule] Federally Enforceable Through Title V Permit
2. Fuel consumption shall not exceed 1,264.8 MMBtu/day of natural gas. [District NSR Rule] Federally Enforceable Through Title V Permit
3. Emissions from this gas turbine shall not exceed any of the following limits: 201.1 lb-NOx/day, 4.8 lb-SOx/day, 16.9 lb-PM10/day, 116.4 lb-CO/day, or 48.4 lb-VOC/day. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Emissions from this gas turbine (corrected to 15% O2) shall not exceed either of the following limits: 35 ppm NOx or 38 ppm CO. [District NSR Rule, 40 CFR 60.332(a)(2) and District Rule 4703, 5.1.2, 5.2] Federally Enforceable Through Title V Permit
5. The water-to-fuel ratio shall be maintained between 0.72 and 0.9 lb of water to pound of fuel. Operator shall perform and submit an engineering performance test to demonstrate continuous compliance with emissions limits beyond the specified ratios. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
6. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rules 1081 and 2520, 9.3.2] Federally Enforceable Through Title V Permit
7. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
8. Sulfur compound emissions shall not exceed 0.2% by volume, 2,000 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a); Fresno County Rule 406] Federally Enforceable Through Title V Permit
9. If this unit is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(b)(2) and District Rule 1070] Federally Enforceable Through Title V Permit
10. If this unit is not fired on PUC-regulated natural gas, the operator shall submit a semiannual report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(c)(2)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

11. If this unit is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM D3246 or double GC for H2S and mercaptans, and fuel H2S content - Draeger tubes calibrated for H2S or other District-approved fuel sulfur detection method(s) or device(s). [40 CFR 60.335(d) and District Rule 1070] Federally Enforceable Through Title V Permit
12. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
13. The owner or operator shall report periods of excess emissions that are defined as follows: any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with the NOx emission limit. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, and gas turbine load. [40 CFR 60.334(c)(1)] Federally Enforceable Through Title V Permit
14. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit
15. The owner or operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, and quantity of fuel used. [District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
16. The HHV and LHV of the fuel combusted shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
17. Permittee shall install, operate and maintain in calibration, to within 5% accuracy, a monitoring system which continuously measures and records the water-to-fuel ratio and fuel consumption and which correlates the water-to-fuel ratio during initial source testing with the NOx concentration in the exhaust. [District NSR Rule, Rule 4703, 6.2.2 and 40 CFR 60.334(a)] Federally Enforceable Through Title V Permit
18. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Fresno County Rules 108.1 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
19. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Fresno County Rule 406 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
20. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(2), (c), and (f), 60.333 (a) and (b); 60.334(a), (c)(1), (c)(2), and (c)(3), and 60.335(b), (c)(2), (c)(3), and (d); District Rule 4703 (as amended 12/19/02), Sections 5.1.2, 5.2, 6.1, 6.3.1, 6.3.3, 6.4, 6.4.5, and 6.4.6 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
21. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rule 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-1121-34-7 **EXPIRATION DATE:** 12/31/2006

SECTION: 32 **TOWNSHIP:** 19S **RANGE:** 15E

EQUIPMENT DESCRIPTION:
TG-2, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION DRIVING A 4 MW ELECTRICAL GENERATOR

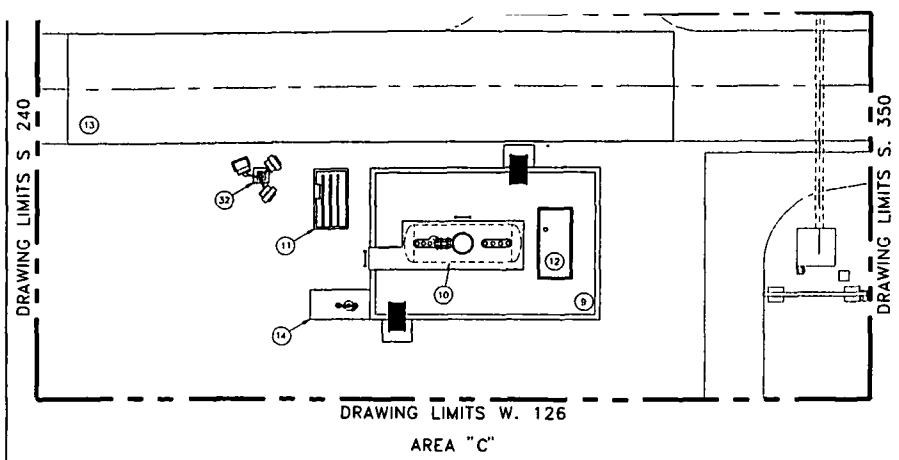
PERMIT UNIT REQUIREMENTS

1. Unit shall be exclusively fired with natural gas containing no more than 1 grain of total sulfur per 100 standard cubic feet of gas. [District NSR Rule] Federally Enforceable Through Title V Permit
2. Fuel consumption shall not exceed 1,264.8 MMBtu/day of natural gas. [District NSR Rule] Federally Enforceable Through Title V Permit
3. Emissions from this gas turbine shall not exceed any of the following limits: 201.1 lb-NOx/day, 4.8 lb-SOx/day, 16.9 lb-PM10/day, 116.4 lb-CO/day, or 48.4 lb-VOC/day. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Emissions from this gas turbine (corrected to 15% O2) shall not exceed either of the following limits: 35 ppm NOx or 38 ppm CO. [District NSR Rule, 40 CFR 60.332(a)(2) and District Rule 4703, 5.1.2, 5.2] Federally Enforceable Through Title V Permit
5. The water-to-fuel ratio shall be maintained between 0.72 and 0.9 lb of water to pound of fuel. Operator shall perform and submit an engineering performance test to demonstrate continuous compliance with emissions limits beyond the specified ratios. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
6. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rules 1081 and 2520, 9.3.2] Federally Enforceable Through Title V Permit
7. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
8. Sulfur compound emissions shall not exceed 0.2% by volume, 2,000 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a); Fresno County Rule 406] Federally Enforceable Through Title V Permit
9. If this unit is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(b)(2) and District Rule 1070] Federally Enforceable Through Title V Permit
10. If this unit is not fired on PUC-regulated natural gas, the operator shall submit a semiannual report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(c)(2)] Federally Enforceable Through Title V Permit

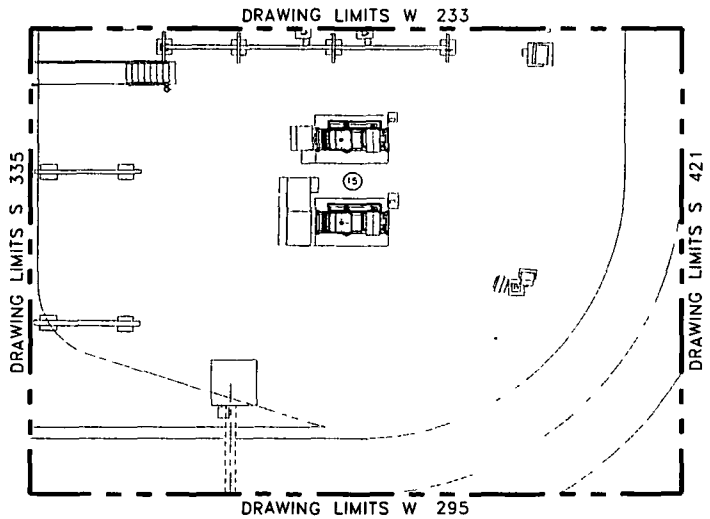
PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

11. If this unit is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM D3246 or double GC for H2S and mercaptans, and fuel H2S content - Draeger tubes calibrated for H2S or other District-approved fuel sulfur detection method(s) or device(s). [40 CFR 60.335(d) and District Rule 1070] Federally Enforceable Through Title V Permit
12. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
13. The owner or operator shall report periods of excess emissions that are defined as follows: any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with the NOx emission limit. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, and gas turbine load. [40 CFR 60.334(c)(1)] Federally Enforceable Through Title V Permit
14. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit
15. The owner or operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, and quantity of fuel used. [District Rule 4703, 6.2.4] Federally Enforceable Through Title V Permit
16. The HHV and LHV of the fuel combusted shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
17. Permittee shall install, operate and maintain in calibration, to within 5% accuracy, a monitoring system which continuously measures and records the water-to-fuel ratio and fuel consumption and which correlates the water-to-fuel ratio during initial source testing with the NOx concentration in the exhaust. [District NSR Rule, Rule 4703, 6.2.2 and 40 CFR 60.334(a)] Federally Enforceable Through Title V Permit
18. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Fresno County Rules 108.1 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
19. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Fresno County Rule 406 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
20. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(2), (c), and (f), 60.333 (a) and (b); 60.334(a), (c)(1), (c)(2), and (c)(3), and 60.335(b), (c)(2), (c)(3), and (d); District Rule 4703 (as amended 12/19/02), Sections 5.1.2, 5.2, 6.1, 6.3.1, 6.3.3, 6.4, 6.4.5, and 6.4.6 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
21. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rule 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

ATTACHMENT II
Equipment Diagrams



NO.	EQUIPMENT IDENTIFICATION LIST
9	ANHYDROUS AMMONIA STORAGE CONTAINMENT AREA
10	ANHYDROUS AMMONIA STORAGE TANK
11	ANHYDROUS AMMONIA UNLOADING SKID
12	ANHYDROUS AMMONIA VAPORIZER SKID
13	ANHYDROUS AMMONIA UNLOADING PAD
14	SAFETY SHOWER & EYE WASH SKID
15	BOILER FEEDWATER PUMPS
32	RELOCATED LIGHT POLE
34	AMMONIA PLC PANEL



NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION

DWG NUMBER	TITLE
	REFERENCE DRAWINGS

SCALE 1/8"=1'-0"

BLACK & VEATCH CORPORATION
BV PROJECT 167583

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA

SIGNED _____
DATE _____ REG NO _____

DATE	REV	DESCRIPTION	BY	APPR	AERA ENG
03/17/11	A	ISSUED FOR IN-HOUSE/CLIENT REVIEW	JEB	RDR	

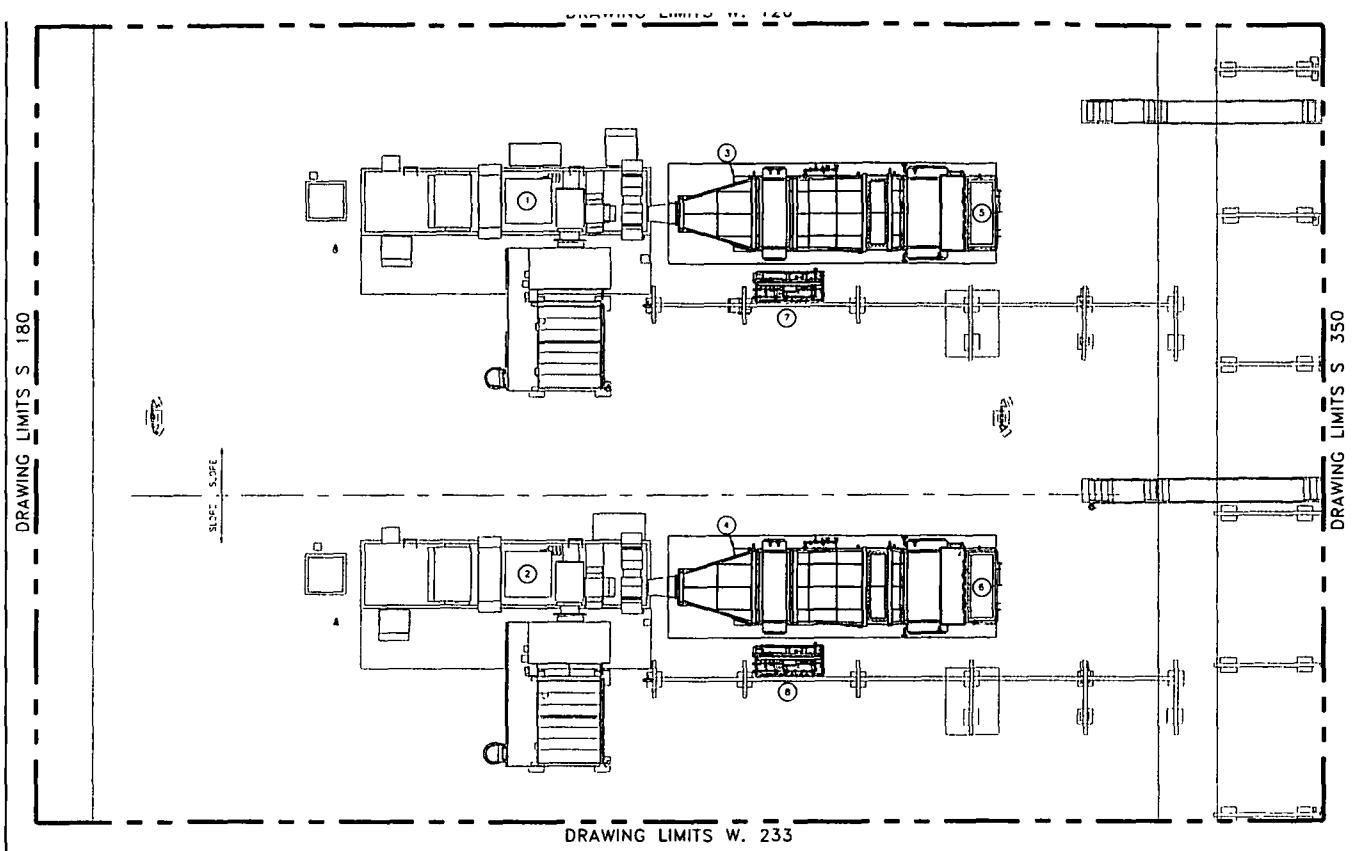
AERA

GENERAL ARRANGEMENT - AREAS "B" AND "C"
COALINGA GENERATION PLANT
SECTION 32 T19S R15E
COALINGA FIELD FRESNO COUNTY CA

AERA ENGINEER	R GLOSHEN	DATE 02/09/11	SCALE 1/8"=1'-0"
CO ENGINEER	D HAGAMAN	ORIGINAL DWG NO	
PROJ MGR	R REIK	NO 013-11-001C	REV A
DRAFTED BY	K MELVILLE		
ECCN NO	EAR99	CAD FILE NO 013-11-001C.DWG	

FUNCTIONAL LOCATION NO

WELL1662
AERA BORDER
03/16/11 17:29:41
ACAD 18.0s (LMS Tech)
1=1



ITEM NO.	EQUIPMENT IDENTIFICATION LIST
1	COMBUSTION TURBINE GENERATOR 101A
2	COMBUSTION TURBINE GENERATOR 101B
3	HEAT RECOVERY STEAM GENERATOR & SCR 101A
4	HEAT RECOVERY STEAM GENERATOR & SCR 101B
5	HRSG 101A EXHAUST STACK
6	HRSG 101B EXHAUST STACK
7	AMMONIA FLOW CONTROL UNIT 101A
9	AMMONIA FLOW CONTROL UNIT 101B
33	HRSG PLC PANEL
35	HEAT TRACE CONTROL PANEL

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION

DWG NUMBER	TITLE
REFERENCE DRAWINGS	

SCALE 1/8" = 1'-0"

BLACK & VEATCH
A CORPORATION
BV PROJECT 167583

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA

SIGNED _____

DATE _____ REG NO _____

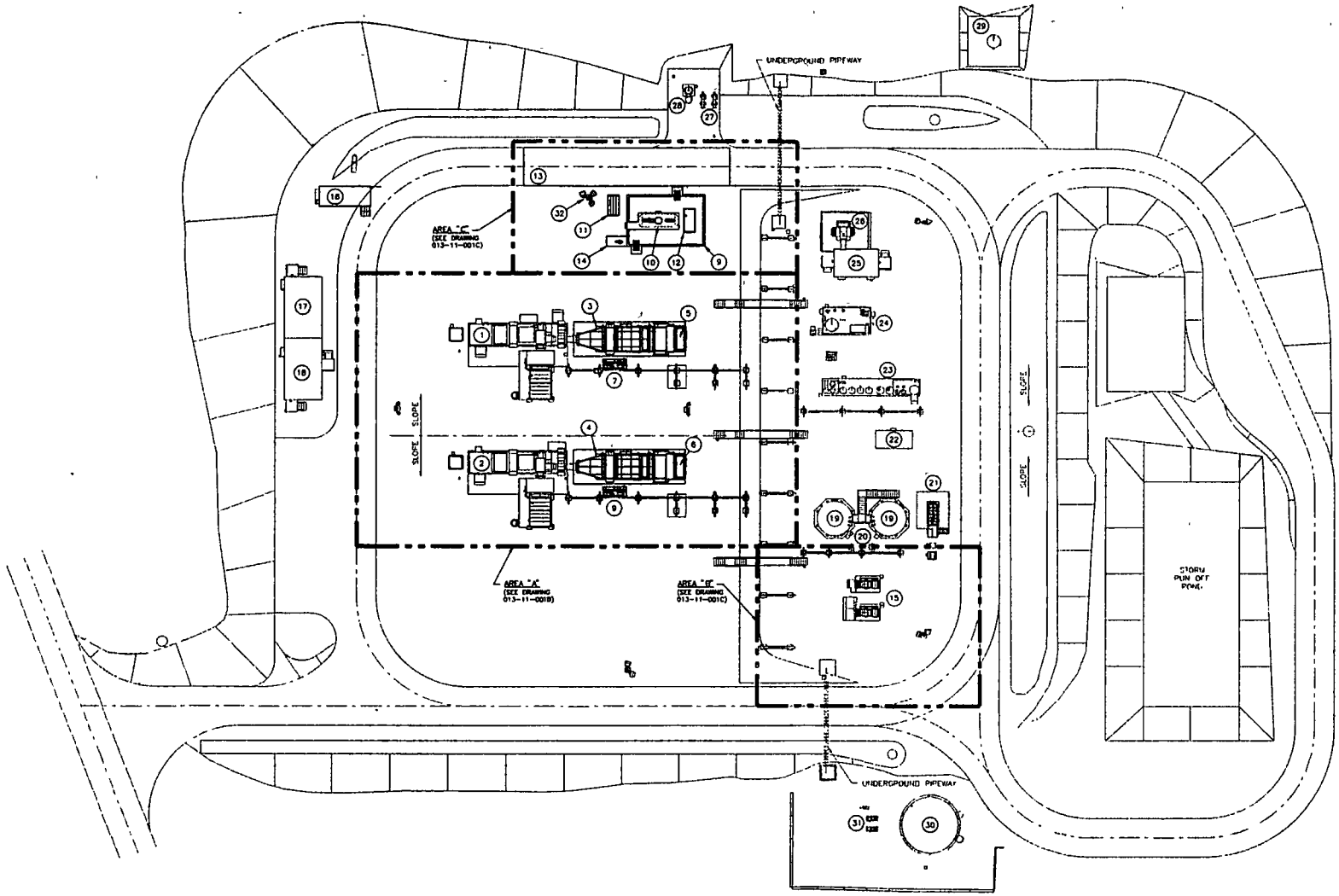
DATE	REV	DESCRIPTION	BY	APPR
03/17/11	A	ISSUED FOR IN-HOUSE/CLIENT REVIEW	JEB	RDR

AERA

GENERAL ARRANGEMENT - AREA "A"
COALINGA GENERATION PLANT
SECTION 32 T19S R15E
COALINGA FIELD FRESNO COUNTY CA

AERA ENGINEER	R. GLOSHEN	DATE 03/16/11	SCALE 1/8"=1'-0"
CO ENGINEER	D HAGAMAN	ORIGINAL DWG ND	
PROJ MGR	R REIK	NO 013-11-001B	REV A
DRAFTED BY	K MELVILLE		
ECCN NO	EAR99	CAD FILE ND 013-11-001B DWG	

FUNCTIONAL LOCATION ND



ITEM NO.	EQUIPMENT IDENTIFICATION LIST
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5	HRSG 101A EXHAUST STACK
6	HRSG 101B EXHAUST STACK
7	AMMONIA FLOW CONTROL UNIT 101A
9	AMMONIA FLOW CONTROL UNIT 101B
8	ANHYDROUS AMMONIA STORAGE CONTAINMENT AREA
10	ANHYDROUS AMMONIA STORAGE TANK
11	ANHYDROUS AMMONIA UNLOADING SKID
12	ANHYDROUS AMMONIA VAPORIZER SKID
13	ANHYDROUS AMMONIA UNLOADING PAD
14	SAFETY SHOWER & EYE WASH SKID
15	BOILER FEEDWATER PUMPS
16	MAINTENANCE/STORAGE SHED
17	SWITCHGEAR ENCLOSURE
18	CONTROL ROOM ENCLOSURE
19	DEMINERALIZED WATER STORAGE TANK
20	DEMINERALIZED WATER FORWARDING PUMPS
21	PORTABLE DEIONIZATION CYLINDERS SKID
22	RO MEMBRANE TUBE SKID
23	WATER FILTRATION SKID
24	COMPRESSED AIR SKID/RECEIVER
25	MCC ENCLOSURE
26	480V TRANSFORMER
27	FUEL GAS FILTERS
28	FUEL GAS SCRUBBER
29	BOILER BLOWDOWN TANK
30	USBR WATER TANK
31	USBR WATER PUMPS
32	RELOCATED LIGHT POLE
33	HRSG PLC PANEL
34	AMMONIA PLC PANEL
35	HEAT TRACE CONTROL PANEL

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION

DWG NUMBER	TITLE
	REFERENCE DRAWINGS

SCALE: 1" = 20'

BLACK & VEATCH CORPORATION
BV PROJECT 197583

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CALIFORNIA

SIGNED _____
DATE _____ REG NO. _____

DATE	REV	DESCRIPTION	BY	APPR	AERA ENG
03/17/11	A	ISSUED FOR IN-HOUSE/CLIENT REVIEW	JEB	ROR	

AERA

GENERAL ARRANGEMENT - SITE
COALINGA GENERATION PLANT
SECTION 32, T19S R15E
COALINGA FIELD, FRESNO COUNTY, CA

AERA ENGINEER	R. GLOSHEN	DATE 03/18/11	SCALE 1"=20'
CO. ENGINEER	D. HAGAMAN	ORIGINAL DWG NO.	-
PROJ. MGR.	R. REIK	NO. 013-11-001A	REV A
DRAFTED BY	K. MELVILLE		
ECCN NO.	EAR99	CAD FILE NO. 013-11-001A.DWG	

FUNCTIONAL LOCATION NO.

ME15692
AERA BORDER (1=1)
ACAD 18.0s (LWS Tech)
03/18/11 17:29:20

ATTACHMENT III
Pre-Project Emissions (revised in this project)

Pre-Project

Pollutant	Emissions Factor Used to Calculate PTO DEL	Source
NO_X	0.159 lb/MMBtu	Current PTO
SO_X	0.0038 lb/MMBtu	District Standard for PUC-quality natural gas in District policy APR 1720
PM_{10}	0.0134 lb/MMBtu	Current PTO
CO	0.092 lb/MMBtu	Current PTO
VOC	0.038 lb/MMBtu	Current PTO

**Calculated in Appendix B Project C1121, 1021687 using manufacturer's exhaust air flow rate = 131,508 lb/hr corresponding to pre-project turbine rating of 52.2 MMBtu/hr, and 40 ppmv NOx, 38 ppmv CO, 1200 MMBtu/day fuel limit listed on PTOs '-34-2 and '-33-2 (Condition #1)*

NOx: [40 ppmv/10^6 x 131,508 lb/hr/29 lb/lbmol air x 46 lb NOx/lbmol]/52.2 MMBtu/hr

= 0.159 lb/MMBtu

CO: [38 ppmv/10^6 x 131,508 lb/hr/29 lb/lbmol air x 28 lb CO/lbmol]/52.2 MMBtu/hr

= 0.092 lb/MMBtu

PM10: [14 lbs/mmscf x mmscf/1000 MMBtu x 1,200 MMBtu/day x day/24 hr]/52.2 MMBtu/hr

= 0.0134 lb/MMBtu

VOC: [42 lb/MMscf x mmscf/1000 MMBtu x 1,140 MMBtu/day x day/24 hr]/52.2 MMBtu/hr

= 0.0383 lb/MMBtu

SOx: 4.8 lb/day/(52.7MMBtu/hr x 24 hr/day) = 0.0038 lb/MMBtu

DELs listed on PTOs C-1121-33-7 and '-34-7 are calculated below.

C-1121-33 and '-34 (each)

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO_X	0.159	52.7	24	201.1
SO_X	0.00380	52.7	24	4.8
PM_{10}	0.0134	52.7	24	16.9
CO	0.092	52.7	24	116.4
VOC	0.0383	52.7	24	48.4

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO_X	0.159	52.7	8,760	73,403
SO_X	0.00380	52.7	8,760	1,754
PM_{10}	0.0134	52.7	8,760	6,186
CO	0.092	52.7	8,760	42,472
VOC	0.0383	52.7	8,760	17,681

ATTACHMENT IV
AP-42 Emissions Factors

Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

Pollutant	Emission Factors[a] - Uncontrolled			
	Natural Gas-Fired Turbines[b]		Distillate Oil-Fired Turbines[d]	
	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[e] (Fuel Input)	Emission Factor Rating
CO_2[f]	110	A	157	A
N_2O	0.003[g]	E	ND	NA
Lead	ND	NA	1.4 E-05	C
SO_2	0.94S[h]	B	1.01S[h]	B
Methane	8.6 E-03	C	ND	NA
VOC	2.1 E-03	D	4.1 E-04[j]	E
TOC[k]	1.1 E-02	B	4.0 E-03[l]	C
PM (condensible)	4.7 E-03[l]	C	7.2 E-03[l]	C
PM (filterable)	1.9 E-03[l]	C	4.3 E-03[l]	C
PM (total)	6.6 E-03[l]	C	1.2 E-02[l]	C

[a] Factors are derived from units operating at high loads (≥80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief". ND = No Data, NA = Not Applicable.

[b] SCCs for natural gas-fired turbines include 2-01-002-01, 2-02-002-01 & 03, and 2-03-002-02 & 03.

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by 1020. Similarly, these emission factors can be converted to other natural gas heating values.

[d] SCCs for distillate oil-fired turbines are 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

[e] Emission factors based on an average distillate oil heating value of 139 MMBtu/10^3 gallons. To convert from (lb/MMBtu) to (lb/10^3 gallons), multiply by 139.

[f] Based on 99.5% conversion of fuel carbon to CO_2 for natural gas and 99% conversion of fuel carbon to CO_2 for distillate oil. CO_2 (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight, and D = density of fuel. For natural gas, C is assumed at 75%, and D is assumed at 4.1 E+04 lb/10^6scf. For distillate oil, CO_2 (Distillate Oil) [lb/MMBtu] = (26.4 gal/MMBtu) (%CON)(C)(D), where C is assumed at 87%, and the D is assumed at 6.9 lb/gallon.

[g] Emission factor is carried over from the previous revision to AP-42 (Supplement B, October 1996) and is based on limited source tests on a single turbine with water-steam injection (Reference 5).

[h] All sulfur in the fuel is assumed to be converted to SO_2. S = percent sulfur in fuel. Example, if sulfur content in the fuel is 3.4 percent, then S = 3.4. If S is not available, use 3.4 E-03 lb/MMBtu for natural gas turbines, and 3.3 E-02 lb/MMBtu for distillate oil turbines (the equations are more accurate).

[j] VOC emissions are assumed equal to the sum of organic emissions.

[k] Pollutant referenced as THC in the gathered emission tests. It is assumed as TOC, because it is based on EPA Test Method 25A.

[l] Emission factors are based on combustion turbines using water-steam injection.

ATTACHMENT V
Emissions Profiles

Application Emissions

Permit #: C-1121-33-9 **Last Updated**
Facility: AERA ENERGY LLC 08/13/2011 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	8448.0	1316.0	3047.0	39240.0	969.0
Daily Emis. Limit (lb/Day)	46.3	3.6	8.3	107.5	2.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-12660.0	0.0	0.0	0.0	0.0
Q2:	-12661.0	0.0	0.0	0.0	0.0
Q3:	-12661.0	0.0	0.0	0.0	0.0
Q4:	-12661.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: C-1121-34-9 **Last Updated**
Facility: AERA ENERGY LLC 08/13/2011 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	8448.0	1316.0	3047.0	39240.0	969.0
Daily Emis. Limit (lb/Day)	46.3	0.6	8.3	107.5	2.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-12660.0	0.0	0.0	0.0	0.0
Q2:	-12661.0	0.0	0.0	0.0	0.0
Q3:	-12661.0	0.0	0.0	0.0	0.0
Q4:	-12661.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

ATTACHMENT VI
HRA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Richard Edghill, AQE– Permit Services
From:	Esteban Gutierrez, AQS– Technical Services
Date:	August 23, 2011
Facility Name:	Aera Energy LLC
Location:	Colinga Oilfield Section 32 T 19S R 15E
Application #(s):	C-1121-33-9, 34-9
Project #:	C-1112108

A. RMR SUMMARY

RMR Summary				
Categories	**SCR Ammonia (Unit 33-9)**	**SCR Ammonia (Unit 34-9)**	**Project Totals**	**Facility Totals**
Prioritization Score	0.00	0.00	0.0	>1
Acute Hazard Index	0.00	0.00	0.00	0.00
Chronic Hazard Index	0.00	0.00	0.00	0.00
Maximum Individual Cancer Risk (10^{-6})	0.00	0.00	0.00	0.77
T-BACT Required?	**No**	**No**		
Special Permit Conditions?	**No**	**No**		

Proposed Permit Conditions

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

Unit # 33-9, 34-9

No special conditions are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on August 10, 2011, to perform a Risk Management Review for a proposed modification to two existing cogeneration Turbines. The modification consisted of the installation of: SCR to both units therefore resulting only in an increase in Ammonia for both units.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Since the total facility prioritization score was greater than one, a refined health risk assessment was required. Emissions calculated using total emissions for Ammonia, for each unit, as calculated by the processing engineer were input into the HEARTs database. The AERMOD model was used, with the parameters outlined below and meteorological data for 2005-2009 from Fresno to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the Hot Spots Analysis and Reporting Program (HARP) risk assessment module to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 33-9, 34-9 each			
Source Type	Point	**Location Type**	Rural
Stack Height (m)	7.32	**Closest Receptor (m)**	2515
Stack Diameter. (m)	1.22	**Type of Receptor**	Residential
Stack Exit Velocity (m/s)	28.3	**Max Hours per Year**	8760
Stack Exit Temp. (°K)	376	**Ammonia**	43800 lb/yr

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.

IV. Attachments

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

ATTACHMENT VII
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-1121-33-9 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: 10000 MING AVE
P O BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL PRODUCTION
FRESNO COUNTY, CA

SECTION: 32 **TOWNSHIP:** 19S **RANGE:** 15E

EQUIPMENT DESCRIPTION:
MODIFICATION OF TG-1, 52.7 MMBTU/HR ALLISON GM 501-KB5 NATURAL GAS FIRED TURBINE WITH WATER INJECTION DRIVING A 4 MW ELECTRICAL GENERATOR: REPLACE HEAT RECOVERY STEAM GENERATOR WITH NEW UNIT INCLUDING SELECTIVE CATALYTIC REDUCTION (SCR) WITH AMMONIA TANK AND DELIVERY SYSTEM TO ACHIEVE TO 5 PPMV NOX FOR RULE 4703 COMPLIANCE

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 NSR Rule] 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. Unit shall be exclusively fired with natural gas containing no more than 1 grain of total sulfur per 100 standard cubic feet of gas. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Except during periods of startup, shutdown, and shakedown, emissions rates (three hour rolling average) shall not exceed any of the following: NOx (as NO2): 5 ppmv dry @ 15% O2, CO: 38 ppmv dry @ 15% O2. [District Rule 2201 and 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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
C-1121-33-9 : Aug 19 2011 9:13AM – EDGEHILR : Joint Inspection NOT Required

5. Emissions shall not exceed any of the following limits: NOx (as NO2); 46.3 lb/day, CO: 107.5 lb/day, PM10: 8.3 lb/day; SOx (as SO2): 3.6 lb/day or VOC: 2.7 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

6. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rules 1081 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

7. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

8. If this unit is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3) and District Rule 1070] Federally Enforceable Through Title V Permit

9. If this unit is not fired on PUC-regulated natural gas, the operator shall submit a semiannual report listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8% by weight. [40 CFR 60.334(j)(2)(i)] Federally Enforceable Through Title V Permit

10. If this unit is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM D3246 or double GC for H2S and mercaptans, and fuel H2S content - gas detection tubes calibrated for H2S or other District-approved fuel sulfur detection method(s) or device(s). [40 CFR 60.335(b)(10)(2) and District Rule 1070] Federally Enforceable Through Title V Permit

11. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit

12. Except during startup, shutdown, and reduced load periods, any one-hour period during which the average ammonia injection flowrate, as measured by the continuous monitoring system, falls outside the flowrate range as determined to demonstrate compliance shall be reported to the APCO. Each report shall include the average average water-to-fuel ratio, ammonia injection flowrate, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(j)(1)(i)] Federally Enforceable Through Title V Permit

13. Permittee shall install, operate and maintain in calibration, to within 5% accuracy, a monitoring system which continuously measures and records the water-to-fuel ratio and fuel consumption and which correlates the water-to-fuel ratio during initial source testing with the NOx concentration in the exhaust. [District NSR Rule, Rule 4703 and 40 CFR 60.334(a)] Federally Enforceable Through Title V Permit

14. Permittee shall install and operate a system which continuously measures and records elapsed time of turbine operation. [District Rule 40 CFR 60.334(a) and District Rule 4703] Federally Enforceable Through Title V Permit

15. Permittee shall install, operate and maintain in calibration a system which continuously measures and records ammonia injection flow rate, monitors ammonia pressure, and sounds an alarm if outside the acceptable operating pressure range. Ammonia injection flow rate and pressure shall be operated within the range recommended by SCR manufacturer and determined by performance tests such that the turbine maintains 95% or greater control efficiency or complies with the applicable NOx emission concentration limit. [District Rule 40 CFR 60.334(a) and District Rule 4703] Federally Enforceable Through Title V Permit

16. Gas turbine engine shall be equipped with water injection system for NOx control. [District Rule 2201] Federally Enforceable Through Title V Permit

17. Gas turbine engine water injection rate shall be maintained at a water-to-fuel ratio documented to result in compliance with emission limits. Operator shall perform and submit an engineering performance test to demonstrate continuous compliance with emissions limits beyond the specified ratios. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

18. Gas turbine engine shall be equipped with continuously recording water to fuel injection rate monitoring system accurate to within +/- 5%. [District Rule 2201 & 40 CFR 60.334(a)] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

19. If ammonia injection system is inoperative for more than 1 hour, gas turbine shall be shut down. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Evaporative cooler shall use only fresh and filtered water. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District Rule 1081] Federally Enforceable Through Title V Permit

22. The ammonia (NH3) emissions from the exhaust of the SCR system serving this gas turbine shall not exceed 20 ppmvd @ 15% O2. [District Rule 2201] Federally Enforceable Through Title V Permit

23. Permittee shall maintain accurate records of ammonia consumption. [District Rule 1070 and 4703] Federally Enforceable Through Title V Permit

24. Gas temperature at SCR catalyst section inlet shall be continuously monitored by operational temperature indicator. Inlet gas temperature to catalyst bed shall be maintained within range recommended by catalyst manufacturer and determined by performance tests. [40 CFR 60.334(a) and District Rule 4703] Federally Enforceable Through Title V Permit

25. During an initial shakedown period, except during periods of startup and shutdown, the emissions shall not exceed any of the following limits: 35 ppmvd NOx @ 15% O2 referenced as NO2. The shakedown period shall not exceed 90 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, water-to-fuel ratio, and results of ammonia injection rate monitoring from CMS. These records shall be made readily available for District inspection upon request. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Startup and shutdown of the gas turbine, as defined in this permit and in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours for startup and two hours for shutdown, per occurrence. Emission concentrations subsequent to this startup period shall not exceed the limits specified in this permit except during shutdown. [40 CFR Subpart A 60.2 and District Rule 4703] Federally Enforceable Through Title V Permit

27. The duration of reduced load shall not exceed a time period of one hour per occurrence. [District Rule 4703] Federally Enforceable Through Title V Permit

28. Daily records of NOx and CO emission calculations during days of startup/shutdown shall be maintained and such records shall be made readily available for District inspection upon request. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

29. Maximum NOx (as NO2) and SOx (as SO2) emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O2, and 150 ppmv-dry @ 15% O2, respectively. [40 CFR 60.332(a)(2) & 60.333(a)] Federally Enforceable Through Title V Permit

30. The permittee shall monitor and record the stack concentration of NOx, CO, NH3, and O2 at least once every month in which a source test is not performed. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes or a District approved equivalent method. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the previous calendar month. [District Rule 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

31. If the NOx or CO concentrations corrected to 15% 02 as measured by the portable analyzer or the NH3 concentration, as measured by gas detection tubes or a District approved equivalent method, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continues to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 4703] Federally Enforceable Through Title V Permit

32. All NOx, CO, 02 and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and 02 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4703] Federally Enforceable Through Title V Permit

33. The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and 02 measurements, (2) the 02 concentration in percent by volume and the measured NOx, CO and NH3 concentrations corrected to 15% 02, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rule 4703] Federally Enforceable Through Title V Permit

34. A source test to demonstrate compliance with NOx, CO, and NH3 emission limits, and fuel sulfur content shall be performed within 60 days after the shakedown period has been completed for this modified unit. The appropriate ammonia injection rate, fuel consumption, ammonia to fuel ratio, water to fuel ratio, and any other associated operating parameter shall be continuously monitored and recorded during this test to establish acceptable operating ranges. Selective Catalytic Reduction (SCR) 95% control efficiency may be demonstrated as an alternative to compliance with the Rule 4703 NOx emissions concentration limit. [District Rules 2201, 40 CFR 60.334(g), 40 CFR 60.335(b), and 4703] Federally Enforceable Through Title V Permit

35. Source testing to measure exhaust gas NOx, CO, and NH3 concentrations and, if applicable, Selective Catalytic Reduction (SCR) control efficiency shall be conducted at least once every twelve (12) months (no more than 30 days before or after the required annual source test date). Performance testing shall be conducted under conditions representative of normal operation. [40 CFR 60.335(b), District Rule 4703, District Rule 2520] Federally Enforceable Through Title V Permit

36. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). [District Rule 4703] Federally Enforceable Through Title V Permit

37. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or 20, CO (ppmv) - EPA Method 10 or 10B, stack gas oxygen - EPA Method 3 or 3A or 20, fuel gas sulfur content - ASTM D1072, D4468, or D3246 or double GC for H2S and mercaptans, fuel gas HHV and LHV - ASTM D3598, D1826 or D1945, Ammonia slip - BAAQMD method ST-1B. [40 CFR 60.335(b) and District Rules 1081 & 4703] Federally Enforceable Through Title V Permit

38. The District must be notified 30 days prior to any performance testing and a test plan shall be submitted for District approval 15 days prior to such testing. [District Rule 1081, 7.1] Federally Enforceable Through Title V Permit

39. Performance testing shall be witnessed or authorized District personnel. Test results must be submitted to the District within 60 day of performance testing. [District Rule 1081, 7.2, 7.3] Federally Enforceable Through Title V Permit

40. Permittee shall report the following emission exceedance to the District: emission rates of NOx & CO on a three-hour rolling average and NSPS emission rate on one hour average. [District Rule 1070, 2201 and 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

41. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation and quantity of fuel used. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption for normal operation and for the startup/shutdown periods. This information may be recorded electronically. Daily entries in the operating log are not required for periods of non-operation. [District Rules 2520 & 4703] Federally Enforceable Through Title V Permit

42. Permittee shall maintain accurate records of all maintenance activities, periodic inspections, and repairs of SCR unit, water and NH3 injection systems, and their associated controller and instrumentation units. [District Rules 1070 and 4703] Federally Enforceable Through Title V Permit

43. Permittee shall comply in full with Rule 4001 (New Source Performance Standards, 40 CFR 60 Subpart GG) requirements, including notification, recordkeeping and monitoring requirements. [District Rule 4001] Federally Enforceable Through Title V Permit

44. The owner or operator shall maintain all records for a period of five years from the date of entry and shall make such records available to the APCO upon request. [District Rules 1080, 2201, & 4703, 6.2.4] Federally Enforceable Through Title V Permit

45. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Fresno County Rules 108.1 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

46. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Fresno County Rule 406 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

47. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332(a)(2), (c), and (f), 60.333 (a) and (b); 60.334(a), (c)(1), (c)(2), and (c)(3), and 60.335(b), (c)(2), (c)(3), and (d); District Rule 4703 (as amended 12/19/02), Sections 5.1.2, 5.2, 6.1, 6.3.1, 6.3.3, 6.4, 6.4.5, and 6.4.6 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rule 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit