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Docket Number:	98-AFC-02C
Project Title:	La Paloma Generating Project
TN #:	254308
Document Title:	La Paloma Petition for Approval of Proposed Modification Inlet Foggers v20
Description:	Petition for Approval of Proposed Modification of the LPGP Gas Turbine Generators; MeeFog Wet Compressions Upgrade.
Filer:	Amritpal Sumal
Organization:	CXA La Paloma, LLC
Submitter Role:	Applicant
Submission Date:	2/2/2024 4:33:54 PM
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La Paloma
Generating Plant

CXA La Paloma, LLC

POB175 (Mail)
1760 W. Skyline Road
(Deliveries)
McKittrick, CA 93251

661.762.6000
661.762.6041 Fax

February 2, 2024

Ashley Gutierrez
Compliance Project Manager
California Energy Commission
Energy Facility Siting Division
715 P Street, MS-2000
Sacramento, CA 95814

RE: *Petition for Approval of Proposed Modification of the LPGP Gas Turbine Generators: MeeFog Wet Compression Upgrade*

Ms. Ashley Gutierrez

CXA La Paloma, LLC (CXA) owns the La Paloma Generating Plant (LPGP) in McKittrick, California. La Paloma Generating Plant (LPGP) submits the attached petition for Commission approval of the proposed Combustion Turbine "MeeFog" Inlet Fogger Project. The purpose of the Project is to improve turbine generator performance and efficiency on hot days when existing turbines are not capable of achieving their full design capacity. This will result in an increase in power production by up to 12 Megawatts per turbine on hot days when the existing turbines are not capable of achieving their full design capacity.

The project will have no significant effects on the existing facility design, health and safety, or environmental impacts. The San Joaquin Valley Air Pollution Control District is in the process of reviewing the proposed project and will provide draft permit conditions to the California Energy Commission for their review. Project details and the 2013 Authority to Construct permits are provided in the attached petition.

Please note that the Project Change Amendment fee of $5,000 will be wired to the California Energy Commission by close of business today. Please do not hesitate to call me at (661) 762-6002 if there are any questions on the attached petition or if more information is required.

Sincerely,

Terry Benson
Facility Manager
CXA La Paloma, LLC

cc: Frank Schneider (Kelson Energy)
Jeff Adkins (Trinity Consultants)
Sean Keane (Trinity Consultants)

PETITION FOR APPROVAL OF PROPOSED MODIFICATIONS TO COMBUSTION TURBINES

INLET FOGGER PROJECT

La Paloma Generating Company / Kern County, CA

California Energy Commission

Prepared By:

TRINITY CONSULTANTS
1575 Delucchi Lane, Suite 203
Reno, NV 89502
(775) 242-3200

February 2024

Trinity Consultants

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1. INTRODUCTION AND BACKGROUND INFORMATION

CXA La Paloma, LLC (CXA) is filing this petition for a proposed project modification to the La Paloma Generating Plant (LPGP or Plant). The LPGP experiences high ambient air temperature conditions that periodically diminish the net power output of the Plant's four combined-cycle combustion turbines. This reduces the amount of electrical energy and capacity that CXA can make available to the California Independent System Operator (CAISO) and the electrical grid, and negatively impacts the economic viability of the LPGP at certain times of the year. As the Energy Commission is aware, the LPGP Commission Decision was amended in 2013 to allow for the use of wet compression inlet fogging to cool the combustion inlet air during ambient temperature days to improve efficiency. This current inlet fogging system has a limited ability to achieve the gas turbine generators' design power production capacity on hot days.

LPGP is proposing to upgrade the existing wet compression inlet air fogging system on each of the four existing combined-cycle gas turbine generators (CTGs) to further increase total power output by up to 12 Megawatts per turbine. This application will also make minor administrative changes to the equipment description. No change in hourly, daily, or annual emissions is proposed. Maximum natural gas firing and generator output will not exceed maximum rated firing rates and generating capacity for the units which occurs on coldest days.

Inlet fogging consists of spraying demineralized water atomized to the size of natural fog droplets (approximately 20 microns in diameter) into a combustion turbine inlet air stream between the evaporative coolers and the turbine compressor inlet. Injecting fog affects turbine air mass temperatures at two locations:

- First, partial evaporation of fog droplets enhances inlet air cooling before the air mass enters the turbine compressor section; and
- Second, additional evaporative cooling occurs when excess fog droplets evaporate inside the compressor section as air mass temperature rises due to greatly increased pressures.

The efficiency effects of inlet air fogging are further enhanced by the phenomenon that less work is required to compress air at cooler inlet temperatures. Thus, more power is available at the turbine output shaft for a given amount of fuel burned. The foggers may be operated when ambient air temperatures are above 57°F. Manufacturer information about inlet fogging is provided by the vendor in Appendix C.

During operation of the upgraded "MeeFog" inlet fogger system, maximum short term and annual emissions of regulated air pollutants will not exceed current emission limits in the existing Permits to Operate, PSD permit, and Commission Decision. Worst-case emissions from the combined-cycle gas turbine generator units will continue to occur on coldest days when the foggers will not operate. Because these units qualify as "Fully Offset Emissions Units" under San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 2201, Section 3.20, and the proposed fogger project will not increase maximum potential emissions, no additional offsets are required for the fogger project.

Furthermore, maximum permitted emissions have been reviewed in previous worst-case air quality impact modeling for the LPGP; therefore, further air quality impact analysis is not necessary. Analyses in CXA's Authority to Construct (ATC) application package to the SJVAPCD, and the SJVAPCD's 2013 Application Review for the original LPGP inlet fogging system also demonstrate that the upgraded "MeeFog" fogger project will not constitute a "Federal Major Modification" but will constitute a "SB288 Major Modification" as defined in Rule 2201. Therefore, NSR Best Available Control Technology (BACT) is triggered by the fogger

project, resulting in a permit condition decrease for NOx emissions from 2.5 ppm to 2.0 ppm. The details of this BACT analysis can be found in Appendix A.

In accordance with Section 1769(a)(2) of the California Energy Commission (CEC) Siting Regulations, the proposed modification does not have the potential to have a significant effect on the environment and will not result in the relaxation or deletion of a condition adopted by the CEC, Docket No. 98-AFC-2C, or cause the LPGP to not comply with applicable laws, ordinances, regulations and standards (LORS).

2. SJVAPCD AIR PERMIT MODIFICATIONS

On January 24, 2013 CXA was issued ATC permits (S-3412-1-18, S-3412-2-19, S-3412-3-19, and S-3412-4-14) by the SJVAPCD to install inlet foggers on each of LPGP's turbine generators (see Appendix B). In May, 2023 CXA submitted an ATC application to the SJVAPCD for approval of a modification to inlet foggers. The 2023 application and supporting documentation are provided in Appendix A of this petition. Electronic files for the application's spreadsheet calculations will be forwarded to the CEC staff by email. CXA's ATC application package provides additional design and operational details about the fogger project along with detailed emission calculations and a regulatory applicability analysis.

2.1 DESCRIPTION OF PROPOSED MODIFICATION

CXA proposed in its May 2023 ATC Application to the SJVAPCD to remove the existing inlet air fogging system and replace with new enhanced larger "MeeFog" system to enable increased efficiency to improve available power production during the hottest operating days.

The existing inlet fogger systems have 17 nozzle lines with 44 nozzles per line. The nozzle lines span the length of the inlet duct, just above the gas turbine compressor inlet. When all the nozzle lines are in operation, the systems produce a fog water flow rate of 33.7 gpm and a power boost of 6 MW per gas turbine.

The proposed "MeeFog" system will have 18 nozzle lines with 76 nozzles per line. The nozzle lines will be located at the same position in the duct as the existing nozzles. When all nozzle lines are in operation, the systems will produce a fog water flow rate of 109 gpm at a power boost of 18 MW compared to the previous system.

Additionally, equipment descriptions are changed in the ATC Application as shown below:

- Change ABB to Alstom Power.
    - At the time permitting process was started for La Paloma by PGE, Alstom was part of ABB. ABB divested its interest in Alstom in 2000.

- Add Oxidation Catalyst reference to Permits S-3412-1, S-3412-2, and S-3412-3.
    - The original project P980654 proposed only one unit with an oxidation catalyst; however, this was changed as reflected in SJVAPCD project P1030712.

ATC Application Post-Project Equipment Description:

- S-3412-1-22: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

- S-3412-2-23: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

- S-3412-3-23: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

- S-3412-4-18: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #4 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

Two drawings of the new inlet fogging system prepared by Mee Industries are attached in Appendix C. Drawing 1 shows the proposed inlet air duct manifold layout and Drawing 2 provides the proposed pump skid P&ID and ladder logic schematic.

3. CEC PETITION TO AMEND ANALYSIS

The following addresses the requirements of California Code of Regulations Title 20, Section 1769 regarding petitioning the commission for approval of any changes proposed to the project design, operation, or performance requirements. Per Section 1769, the petition must contain the information described in the following sections.

3.1 NECESSITY OF PROPOSED MODIFICATION

The requested amendment would ensure continued consistency between the Commission Decision and CXA's air permits and is necessary to allow increased combustion turbine generator performance and efficiency.

3.2 INFORMATION KNOWN AT TIME OF CERTIFICATION PROCESS

Information that forms the basis for this proposed modification was not known at the time of the original certification process. CXA began considering modification to the inlet foggers in recent months.

With the requested CEC approval to modify combustion turbine inlet foggers, the Plant will be able to take advantage of new technology to improve combustion turbine performance and efficiency during hot ambient conditions. The proposed modification does not alter the design capacity of the combustion turbine generators.

3.3 IMPACT ANALYSIS OF PROPOSED MODIFICATION

3.3.1 Applicable Conditions of Certification

The LPGP will continue to comply with all existing Conditions of Certification after implementation of the proposed Inlet Fogger Project. Therefore, CXA anticipates that no changes to Conditions of Certification or Verifications are necessary for the project. However, in order for the Conditions of Certification to align with the SJVAPCD ATC for the project, we anticipate that the NO_x emission concentration limit will be reduced as a result of new BACT determination by the SJVAPCD (see discussion below).

3.3.2 Impact Analysis

Pursuant to District Rule 2201, Section 4.1, BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. The LPGP's ATC Application for the new MeeFog project (see Appendix A), concluded on page 26 that the proposed fogger project is subject to BACT. On this basis, the District found that this project is not exempt from provisions of the California Environmental Quality Act (CEQA).

Pursuant to the attached Top-Down BACT Analysis in the ATC Application (see Appendix A), BACT is satisfied with the following:

NO_X: 2.5 ppmv dry @ 15% O_2 (1-hr average)
PM_{10}: Air inlet filter cooler, lube oil vent coalescer and natural gas fuel, or equal
VOC: 2.0 ppmv @ 15% O_2

However, we understand that the SJVAPCD is proposing NOx BACT at 2.0 ppmv dry @ 15% O_2 (1-hr average). This will require a change to Condition of Certification AQ-12 as follows:

> ***AQ-12*** *Emission rates from each gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown, shall not exceed the following:*
>
> *PM_{10}: 17.20 lb/hr*
> *SO_x (as SO_2): 3.73 lb/hr*
> *NO_x (as NO_2): ~~17.30~~ **13.84** lb/hr and 2.**0**~~5~~ ppmvd @ 15% O_2*

3.3.2.1 Air Quality

The project will not increase LPGP permitted emission limits; however, the project may increase the actual emissions. The facility's permitted emissions have previously been fully mitigated through the purchase and retirement of qualified SJVAPCD Emission Reduction Credits (ERCs). The 1.5:1 offset ratio required by SJVAPCD rules provides for a net air quality benefit to the air basin. Permitted emissions have also been thoroughly evaluated for air quality impacts in past air permitting and certification analyses by CXA, SJVAPCD, EPA, and the CEC.

The offset mitigation for this project has been reviewed in Appendix A, resulting in no offset calculations needed. No modifications to existing Air Quality Conditions of Certification in the Commission Decision (except as noted above regarding NO_x) will be required.

3.3.2.2 Biological Resources

The proposed modification and operation of inlet foggers will have no known impact on biological resources surrounding the Plant. There will be no increase in permitted emissions. Clean demineralized water will be used in the foggers and will not result in any significant additional particulate matter emissions and downwind deposition from Plant stack emissions onto local/regional vegetation.

No modifications to the Biological Resources Conditions of Certification in the Commission Decision will be required.

3.3.2.3 Public Health and Worker Safety

The proposed amendment does not present significant potential impacts related to public health or worker safety that were not contemplated by the Application for Certification or the Commission Decision. The proposed modification will not alter permitted emissions. California Aqueduct water, used as source water for the Plant will be cleaned and demineralized for use in the foggers, and is not known to contain significant levels of toxic compounds. Furthermore, during processing of CXA's ATC application, SJVAPCD staff evaluated potential air emissions and impacts, and found that less than significant health impacts will occur (see Appendix A).

No modifications to the Public Health or Worker Safety Conditions of Certification in the Commission Decision will be required.

3.3.2.4 Visual Resources

The proposed modification will have no effect on visual resources.

No modifications to Visual Resources Conditions of Certification in the Commission Decision will be required.

3.3.2.5 Soil and Water Resources and Wastewater

The proposed modification will have no significant effect on soil resources or water resources. Plant-wide annual water use will remain within maximum levels previously approved by the West Kern Water District (5500 acre-feet). Likewise, operation of the proposed inlet foggers will not significantly alter the facility's wastewater characteristics and volume. Both will remain within ranges previously evaluated and approved in the Commission Decision.

The existing inlet fogging systems have 17 nozzle lines with 44 nozzles per line. The nozzle lines span the length of the inlet duct, just above the gas turbine compressor inlet. When all the nozzle lines are in operation, the systems produce a fog water flow rate of 33.7 gpm per turbine. If foggers are operated up to 5,580 hours/year, this amounts to about 45 million gallons/year or 138 acre-feet for all four turbines.

The proposed "MeeFog" inlet fogging systems will have 18 nozzle lines with 76 nozzles per line. The nozzle lines will be located at the same position in the duct as the current nozzles. When all nozzle lines are in operation, the systems will produce a fog water flow rate of 109 gpm per turbine. If foggers are operated up to 5,580 hours/year, this amounts to about 146 million gallons/year or 445 acre-feet for all four turbines. This 445 acre-feet can be accommodated within the previously approved 5500 acre-feet and there is no significant effect on water usage. Clean demineralized water will be fed to the foggers and will not result in any significant additional particulate matter emissions and downwind deposition from Plant stack emissions onto local/regional soils.

No modifications to Soil and Water Resources Conditions of Certification in the Commission Decision will be required.

3.3.2.6 Waste Management

The proposed fogger project will not significantly alter the facility's solid and liquid waste streams. Wastewater is discussed above.

Therefore, no changes to the existing Conditions of Certification related to waste management are needed.

3.3.2.7 Facility Design

The proposed fogger project will not significantly alter the facility design. Alterations to the combustion turbines include only modification of fogger nozzles at the air inlets. No alterations to water supply and treatment systems, and wastewater disposal systems are needed. All facility changes will occur within the fenced facility perimeter during installation and operation. Land and facilities outside the fenceline will not be affected.

Therefore, no changes to the existing Conditions of Certification related to facility design and waste management are needed.

3.3.2.8 Other Resource Topics

Finally, other resource areas, including cultural resources, noise, traffic and transportation, hazardous material management, waste management, land use, and socioeconomics, will not be affected by the proposed modification. Modification and operation of the proposed fogger project will occur entirely within the existing LPGP fenced perimeter. Therefore, no modification to the Commission Decision for these other resource topics will be required.

3.4 COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The proposed modification and operation of inlet air foggers does not represent a significant change to facility design elements or present any significant new environmental impacts. The ATC Permits issued by SJVAPCD will include a Title V Certification of Compliance. U.S. EPA Region 9 has been notified of the draft ATC. Therefore, the requested amendment will not affect the ability of CXA to comply with all applicable LORS.

3.5 EFFECTS OF AMENDMENT ON THE PUBLIC

The amendment will not present any significant additional impacts that would have an adverse effect on the public. Allowing the Plant to continue operating in compliance with air emission limits will enable CXA to continue to provide reliable electric power to the grid system, with increased generation capacity and efficiency during hot days, thereby resulting in a positive effect on the public.

3.6 LIST OF PROPERTY OWNERS

The following is a list of property owners adjacent to the project area based on information obtained from the Kern County Assessor's Office on December 20, 2012 and February 1, 2024:

APN	Owner	Address
157-110-05	USA/BLM	3801 Pegasus Drive Bakersfield, CA 93308-6837
157-110-20	Berry Petroleum Company	5201 Truxtun Avenue, No. 300 Bakersfield, CA 93309-6409 and 1999 Broadway, Suite 3700 Denver, CO 80202
157-210-05	Pac Gas & Elec Co	300 Lakeside Drive, Oakland CA 94612
157-220-02	Naftex Arm LLC	P.O. Box 308 Edison CA 93220
157-220-03	Taking Future Inc	9465 Wilshire Blvd Ste 300, Beverly Hills, CA 90212
157-220-05	USA/BLM	3801 Pegasus Drive Bakersfield, CA 93308-6837
157-230-03	Chevron USA, Inc.	P.O. Box 1392 Bakersfield, CA 93302-1392
157-230-15	Chevron USA, Inc.	P.O. Box 1392 Bakersfield, CA 93302-1392

APN	Owner	Address
157-260-03	Linn Energy Holdings LLC	600 Travis St. STE 5100 Houston TX 77002
157-260-04	Zollars Joan Y Tr	3024 Lewis Street Placerville, CA 95667-5601
157-270-01	Occidental of Elk Hills, Inc.	4026 Skyline Rd. Tupman, CA 93276

3.7 EFFECTS ON NEARBY PROPERTY OWNERS, THE PUBLIC, AND PARTIES TO THE APPLICATION

The proposed modification will not result in any additional impacts to nearby property owners or the public. The proposed project will occur entirely within the LPGP facility's fenced perimeter. The nearest residences are 1.5 miles west of the Plant. Therefore, there will be no adverse impacts on nearby property owners, the public, or parties in the application proceedings.

APPENDIX A. MAY 2023 ATC PACKAGE

San Joaquin Valley Air Pollution Control District

www.valleyair.org

Checklist for Permit Applications:

To avoid unnecessary delays, please review the following checklist before submitting your Authority to Construct/Permit to Operate Application.

Checklist for Complete Applications (include the following)	
☒	1. A signed Authority to Construct/Permit to Operate Application.
☒	2. Include a site map that identifies the location(s) where the new/modified unit(s) will operate and the approximate property lines. This is required for any proposal for new equipment, an increase in emissions from existing units, or change in location of emission points.
☒	3. Any applicable supplemental application forms. Supplemental application forms can be found here: http://www.valleyair.org/busind/pto/ptoforms/1ptoformidx.htm
☒	4. Equipment listing (including a list of electric motors with hp rating).
☒	5. Include a short project description, including a process flow schematic identifying emission points.
☒	6. Process parameters (describe throughput, operating schedule, fuel rate, raw material usage, etc.).
☒	7. Identify control equipment/technology.
☒	8. Any additional information required to calculate emissions.
☐	9. $87 filing fee for each permit unit. *Note: Permit application processing time will be billed at the applicable District hourly labor rate*

Detailed Authority to Construct (ATC) and Permit to Operate (PTO) Application Instructions can be found here:

PDF Format: http://www.valleyair.org/busind/pto/ptoforms/atcappinstruct.pdf
Word Format: http://www.valleyair.org/busind/pto/ptoforms/WordDocs/atcappinstruct.doc

Applications may be submitted either by mail or in person at any of the regional offices listed below. The District is pleased to provide businesses with assistance in all aspects of the permitting process. Any business is welcome to call the **Small Business Assistance (SBA) Hotline** or to visit the SBA Office located in each of the regional offices. No appointment is necessary. For more information, please call the SBA Hotline serving the county in which your business is located.

Northern Region Office
(Serving San Joaquin, Stanislaus, and Merced Counties):

4800 Enterprise Way
Modesto, California 95356-8718
(209) 557-6400
FAX: (209) 557-6475
SBA Hotline: (209) 557-6446

Central Region Office
(Serving Madera, Fresno, and Kings Counties):

1990 E Gettysburg Avenue
Fresno, California 93726-0244
(559) 230-5900
FAX: (559) 230-6061
SBA Hotline: (559) 230-5888

Southern Region Office
(Serving Tulare and Kern Counties):

34946 Flyover Court
Bakersfield, California 93308
(661) 392-5500
FAX: (661) 392-5585
SBA Hotline: (661) 392-5665

San Joaquin Valley Air Pollution Control District
Authority to Construct/Permit to Operate Application Form

www.valleyair.org

1. PERMIT TO BE ISSUED TO: CXA La Paloma

2. MAILING ADDRESS:
STREET or P O BOX: 1760 W Skyline Rd
CITY: McKittrick STATE: CA ZIP CODE: 93251

3. LOCATION WHERE THE EQUIPMENT WILL BE OPERATED:
☒ *Check box if same as mailing address and skip to next section.*
STREET: _____ CITY: _____
If a physical address is not available:
ZIP CODE: 1/4 SECTION: TOWNSHIP: RANGE:

4. IS EQUIPMENT WITHIN 1,000 FT OF A SCHOOL?
☐ YES ☒ NO

5. GENERAL NATURE OF BUSINESS:
Electric power generation

6. S.I.C. CODE OF FACILITY:
4911

7. TITLE V PERMIT HOLDERS ONLY: Do you request a COC (EPA Review) prior to receiving your ATC?
☒ YES *If yes, please complete and attach a Compliance Certification form (TVFORM-009)*
☐ NO

8. DESCRIPTION OF EQUIPMENT OR MODIFICATION FOR WHICH APPLICATION IS MADE:
(*Please include permit #s if known, a site map, a Supplemental Application Form if available, and use additional sheets if necessary*)
Modification of four gas turbine generators (MeeFog wet compression upgrade)

☐ Yes, a site map is included indicating approximate emission locations and property lines.

9. IS THE EQUIPMENT OR MODIFICATION ALREADY INSTALLED OR COMPLETED?
☐ YES *Please provide date of installation:* _____
☒ NO *Please provide expected date of installation or modification:* 2024

10. DO YOU REQUEST A PERIOD TO REVIEW THE DRAFT AUTHORITY TO CONSTRUCT (ATC) PERMIT PRIOR TO ATC ISSUANCE?
Please note that requesting a review period will delay issuance of your final permit by a corresponding number of working days. See instructions for more information on this review
☒ 3-day review
☐ 10-day review
☐ No review requested

11. IS THIS APPLICATION FOR THE CONSTRUCTION OF A NEW FACILITY?
☐ YES *If "Yes", please complete the CEQA Information form: http://www.valleyair.org/busind/pto/ptoforms/CEQAInformationForm.doc.*
☒ NO *If "No", is the proposed equipment or project allowed by either:*
- the Conditional Use Permit or other Land Use Permit? ☒ YES ☐ NO
- or by Right? ☐ YES ☐ NO

12. IS THIS APPLICATION SUBMITTED AS THE RESULT OF EITHER A NOTICE OF VIOLATION (NOV) OR A NOTICE TO COMPLY (NTC)? ☐ YES ☒ NO *If yes, NOV/NTC #:* _____

13. APPLICANT NAME: Frank Schneider
TITLE: Vice President, Compliance
SIGNATURE: [signature] DATE: MAY 11, 2023

14. APPLICANT CONTACT INFORMATION:
PHONE #: (703) 431 - 1007
CELL PHONE #: ( ) -
E-MAIL: frank.schneider@kelsonenergy.com

15. ***Optional Section:*** *DO YOU WANT TO RECEIVE INFORMATION ABOUT EITHER OF THE FOLLOWING VOLUNTARY PROGRAMS?*
☐ *"HEALTHY AIR LIVING (HAL) BUSINESS PARTNER"* ☐ *"INSPECT"*

FOR APCD USE ONLY:

DATE STAMPS	FILING FEE RECEIVED:$	CHECK #:	DATE PAID:
	PROJECT #:	FACILITY ID #:	

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review

Modification of Gas Turbine Generators: MeeFog Wet Compression Upgrade

Facility Name:	CXA La Paloma, LLC	Date:	
Mailing Address:	1760 W Skyline Rd McKittrick, CA 93251	Engineer:	
		Lead Engineer:	
Contact Person:	Terry Benson		
Telephone:	(661) 762-6002		
Fax:			
E-Mail:	tbenson@lapalomagc.com		
Application #(s)[1]:	S-3412-1-21, '-2-22, '-3-22, '-4-17		
Project #:			
Deemed Complete:			

I. Proposal

CXA La Paloma, LLC (CXA) owns the La Paloma Generating Plant (LPGP) in McKittrick, California.

LPGP is proposing to upgrade the wet compression inlet air fogging system on each of the four existing combined-cycle gas turbine generators (CTGs) to further increase total power output by up to 12 Megawatts. This application will also make minor administrative changes to the equipment description. No change in hourly, daily, or annual emissions is proposed.

LPGP is an existing Title V facility. This modification can be classified as a Title V minor modification pursuant to Rule 2520 and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct documents. La Paloma must apply to administratively amend their Title V permit.

Current PTOs S-3412-1-19, '-2-20, '-3-20, and '-4-15 are included in Appendix A.

[1] At the time of this project, the Title V permit numbers are S-3412-1-19, '-2-20, '-3-20, '-4-15. This facility is in processing for renewal. The permit revision numbers reflected here represent the assumed new revision numbers for the renewed Title V permit (escalated revision number by 1), plus 1 more for this proposed modification. This assumption is carried throughout this application package.

II. Applicable Rules

Rule 1080	Stack Monitoring (12/17/92)
Rule 1081	Source Sampling (12/16/93)
Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
Rule 2540	Acid Rain Program (11/13/97)
Rule 4001	New Source Performance Standards (4/14/99)
	40 CFR Part 60, Subpart GG - Standards of Performance for Stationary Gas Turbines
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4703	Stationary Gas Turbines (9/20/07)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

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

III. Project Location

The facility is located at 1760 West Skyline Road in McKittrick, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

LPGP operates a natural gas-fired combined-cycle combustion turbine facility which sells electricity to the power grid. The facility includes 13 permit units consisting of the following equipment:

- ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1
- ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2
- ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3
- ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #4
- COOLING TOWER #1
- COOLING TOWER #2

- 587 BHP CATERPILLAR MODEL #3406 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (#1)
- 587 BHP CATERPILLAR MODEL #3406 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (#2)
- 587 BHP CATERPILLAR MODEL #3406 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (#3)
- 587 BHP CATERPILLAR MODEL #3406 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (#4)
- 1,829 BHP CATERPILLAR MODEL C32 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (#5)
- 6.4 MMBTU/HR CLAYTON MODEL EG-154-1 LNB NATURAL GAS FIRED BOILER
- 240 BHP CLARKE-DETROIT DIESEL-ALLISON MODEL #JU6H-UF60 DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

The four existing CTGs each currently have wet compression inlet air fogging systems that have been operating since 2013. This application will replace the existing inlet fogging systems.

Inlet fogging systems all operate primarily the same way. The description below was taken from the existing inlet air fogging process description from SJVAPCD Project 1124366.

Inlet fogging consists of spraying water atomized to the size of natural fog droplets (i.e. about 20 microns in diameter) into a combustion turbine inlet air stream between the evaporative coolers and the turbine compressor inlet. Injecting fog affects turbine air mass temperatures at two locations:

- First, partial evaporation of fog droplets enhances inlet air cooling (i.e., until saturation is reached) before the air mass enters the turbine compressor section, and
- Second, additional evaporative cooling occurs when excess fog droplets evaporate inside the compressor section as air mass temperature rises due to greatly increased pressures. This latter cooling effect is not achievable with evaporative coolers alone.

The efficiency effects of inlet air fogging are further enhanced by the phenomenon that less work is required to compress air at cooler inlet temperatures. Thus, more power is available at the turbine output shaft for a given amount of fuel burned. The foggers may be operated when ambient air temperatures are above 57 °F. Manufacturer information about inlet fogging is provided by the vendor in Attachment B.

By increasing air mass flow and decreasing air temperatures entering the combustor section of each turbine engine, inlet air fogging increases peak fuel consumption during maximum firing on hot days. However, maximum fuel flow on hot days is not expected to exceed maximum rated fuel flow for the engines, which occurs on the coldest day. The increased mass flow and reduction in compressor work results in improved turbine output and improved fuel efficiency on hot days and reduces the production of NOx emissions as discussed below. The anticipated additional increase in generating capacity from each of the LPGC combustion turbines is

approximately 12 MW[2], thereby improving turbine output and efficiency on hot days. CTG output during fogging will not exceed maximum design capacity, which occurs on the coldest day when air density is greatest.

No increase in permitted emissions from the CTG units is proposed.

V. Equipment Listing

Pre-Project Equipment Description:

S-3412-1-20: ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

S-3412-2-21: ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

S-3412-3-21: ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

S-3412-4-16: ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #4 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

Proposed Modification:

Remove existing inlet air fogging system and replace with new enhanced larger system to enable increased efficiency to improve available power production during the hottest days. Additionally, equipment descriptions are changed as shown below:

- Change ABB to Alstom Power.
    - At the time permitting process was started for La Paloma by PGE, Alstom was part of ABB. ABB divested its interest in Alstom in 2000.

[2] Existing inlet air fogging system increase in generating capacity was 3-8 MW. The new generating capacity increase is on top of what is currently installed and referenced on the existing gas turbine generator permits.

- Add Oxidation Catalyst reference to Permits S-3412-1, '-2, and '-3.
    - The original project P980654 proposed only one unit with an oxidation catalyst; however, this was changed as reflected in project P1030712.

S-3412-1-21: MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING): REPLACE 1 PUMP INLET AIR FOGGING SYSTEM WITH 180 GPM INLET AIR FOGGING SYSTEM, CHANGE ABB TO ALSTOM POWER, ADD MISSING REFERENCE TO OXIDATION CATALYST

S-3412-2-22: MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING): REPLACE 1 PUMP INLET AIR FOGGING SYSTEM WITH 180 GPM INLET AIR FOGGING SYSTEM, CHANGE ABB TO ALSTOM POWER, ADD MISSING REFERENCE TO OXIDATION CATALYST

S-3412-3-22: MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING): REPLACE 1 PUMP INLET AIR FOGGING SYSTEM WITH 180 GPM INLET AIR FOGGING SYSTEM, CHANGE ABB TO ALSTOM POWER, ADD MISSING REFERENCE TO OXIDATION CATALYST

S-3412-4-17: MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #4 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING): REPLACE 1 PUMP INLET AIR FOGGING SYSTEM WITH 180 GPM INLET AIR FOGGING SYSTEM, CHANGE ABB TO ALSTOM POWER

Post-Project Equipment Description:

S-3412-1-22: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

S-3412-2-23: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION,

OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

S-3412-3-23: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

S-3412-4-18: ALSTOM POWER GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #4 WITH 3 PUMP INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (289 MW NAMEPLATE RATING)

VI. Emission Control Technology Evaluation

There are no changes to any of the emissions control technologies.

The following description was primarily taken from SJVAPCD Project 1124366 (original inlet fogger installation).

Emissions from the natural gas-fired turbines (S-3412-1 through `-4) include NOx, CO, VOC, PM10, and SOX.

NOx emissions will continue to be controlled by the use of Dry Low NOx combustors and selective catalytic reduction (SCR). Steam injection is also used for power augmentation.

The Dry Low NOx combustor reduces the formation of NOx by staging the fuel combustion, which, in turn, lowers the combustion temperature and the formation of thermal NOx. Thermal NOx formation is primarily a function of flame temperature and residence time. The extent of fuel/air mixing prior to combustion affects NOx formation. Simultaneous mixing and combustion results in localized fuel-rich zones that yield high flame temperatures in which substantial thermal NOx production takes place. Hence, staged combustion reduces the amount of thermal energy released by combustion at any one time, thereby lowering the peak combustion temperature and thermal NOx.

SCR is a post-combustion NOx control method that uses ammonia (in the present case) and a catalyst to reduce NOx in the exhaust to nitrogen gas (N2). Ammonia slip or unreacted ammonia emitted to the atmosphere is a by-product of this pollution control device.

CO and VOC emissions will continue to be controlled using an oxidation catalyst, which utilizes a precious metal catalyst bed to convert CO in the exhaust to carbon dioxide (CO2).

PM10 and SOx will continue to be minimized using pipeline quality natural gas.

VII. General Calculations

A. Assumptions

- No changes in emissions factors and emissions limits for any unit are proposed.
- Previous assumptions, emission factors, and emission calculations repeated here from Projects S-3412 P980654 and P1073670.
- NOx, VOC, and CO hourly emissions are based on vendor supplied exhaust flow rate data and ppmv values identified in current permits.
- Except for PM10 and SOx, maximum daily emissions for each CTG are based on 1 cold start/day, 1 shutdown/day, and 21.6 hours/day normal operation @ 100% capacity.
- Except for PM10 and SOx, maximum annual emissions for each CTG are based on 10 cold start/year (@ 2 hour/cold start) and 40 warm starts/year (@ 0.5 hr/warm start) result in a total of 40 hours/year of startup operation.
- PM10 and SOx emissions are solely dependent on fuel use, maximum daily PM10 and SOx emissions are based on 24 hours/day operation @ 100% capacity @ 15 degrees F and maximum annual PM10 and SOx emissions are based on 8760[3] hour/year operation @ 100% capacity @ 65 degrees F.
- There are no shutdown emissions in the annual emission estimates. On an annualized basis when the CTGs are shutdown, the shutdown emissions are mitigated because the CTGs have no operational emissions for a period of time after the shutdown.
- Cold starts have emissions higher than hot or warm starts, and warm starts have emissions higher than hot starts.
- All four CTGs are identical; therefore, only one set of example calculations are performed.

B. Emission Factors

For the modified CTGs, the permitted daily emissions factors associated with normal operation plus startup/shutdown for NO_X, CO, and VOC are not changed from the original project S-3412 P980654 and represented on current permits. Projects 1030712 and 1073670 made changes to SOx and PM10 daily limits and annual limits for all pollutants. Details of the derivation of the daily emissions are shown below for clarity only and to provide historical/background documentation in support of the Projected Actual Emissions.

[3] Note to SJVAPCD: There is an exception to this statement for SOx. The correlation from lb/hr to lb/yr could not be validated.

Cold Start Emission Factors			
Parameter	**Value**	**Units**	**Resource**
Daily Operation	2.0	hr/day	Project S-3412 P980654 (2 hr/cold start)
NOx Daily EF	36.0	lb/hr	Project S-3412 P980654
CO Daily EF	592.5	lb/hr	Project S-3412 P980654
VOC Daily EF	36.0	lb/hr	Project S-3412 P980654

Shutdown Emission Factors			
Parameter	**Value**	**Units**	**Resource**
Daily Operation	0.4	hr/day	Project S-3412 P980654 (0.4 hr/shutdown)
NOx Daily EF	164.35	lb/hr	Project S-3412 P980654
CO Daily EF	581.7	lb/hr	Project S-3412 P980654
VOC Daily EF	25.8	lb/hr	Project S-3412 P980654

Normal Operation with Startups/shutdowns Emission Factors			
Parameter	**Value**	**Units**	**Resource**
Daily Operation	21.6	hr/day	Project S-3412 P980654 (24 hr/day - cold start hr/day - warm start hr/day - shutdown hr/day)
NOx Daily EF	17.3	lb/hr	Project S-3412 P980654
SOx Daily EF	3.89	lb/hr	Previous Project
PM10 Daily EF	11.0	lb/hr	Previous Project
CO Daily EF	21.08	lb/hr	Previous Project
VOC Daily EF	2.66	lb/hr	Previous Project

Normal Operation Emission Factors			
Parameter	**Value**	**Units**	**Resource**
Daily Operation	24	hr/day	Project S-3412 P1073670, current permit
NOx Daily EF	17.3	lb/hr	Project S-3412 P980654, current permit
SOx Daily EF	3.89	lb/hr	Previous Project, current permit
PM10 Daily EF	11.0	lb/hr	Previous Project, current permit
CO Daily EF	31.4	lb/hr	Previous Project, current permit
VOC Daily EF	2.8	lb/hr	Previous Project, current permit

Recommissioning Emissions			
Parameter	**Value**	**Units**	**Resource**
NOx Daily	4,790	lb/day	Project S-3412 P1073670, current permit

Annual Emissions			
Parameter	**Value**	**Units**	**Resource**
NOx Annual	146,001	lb/yr	Project S-3412 P1073670, current permit
SOx Annual	30,517	lb/yr	Project S-3412 P1073670, current permit
PM10 Annual	96,360	lb/yr	Project S-3412 P1073670, current permit
CO Annual	217,921	lb/yr	Project S-3412 P1073670, current permit
VOC Annual	25,063	lb/yr	Project S-3412 P1073670, current permit

C. Calculations

Potential emissions associated with normal operation plus startup/shutdown for all CTGs is the sum of the emissions associated with cold start, shutdown, and normal operations when startups/shutdowns occur.

Potential emissions associated with normal operation without startup/shutdown for all CTGs is the Normal Operation Emission Factors times 24 hr/day.

The general equation for all pollutants is the same:

Pollutant (lb/day) = Daily Operation (hr/day) x Pollutant Daily EF (lb/hr)

1. Pre-Project Potential to Emit (PE1)

The potential to emit for the operation is calculated as follows, and summarized in the tables below:

Cold Start Emissions

NOx

PE1 (lb/day) = 2.0 (hr/day) x 36.0 (lb/hr) = 72.0 (lb/day)

CO

PE1 (lb/day) = 2.0 (hr/day) x 592.5 (lb/hr) = 1,185.0 (lb/day)

VOC

PE1 (lb/day) = 2.0 (hr/day) x 36.0 (lb/hr) = 72.0 (lb/day)

Shutdown Emissions

NOx

PE1 (lb/day) = 0.4 (hr/day) x 164.35 (lb/hr) = 65.74 (lb/day)

CO

PE1 (lb/day) = 0.4 (hr/day) x 581.7 (lb/hr) = 232.68 (lb/day)

VOC

PE1 (lb/day) = 0.4 (hr/day) x 25.8 (lb/hr) = 10.32 (lb/day)

Normal Operation Emissions with startups/shutdowns

NOx

PE1 (lb/day) = 21.6 (hr/day) x 17.3 (lb/hr) = 373.68 (lb/day)

SOx

PE1 (lb/day) = 24.0 (hr/day) x 3.89 (lb/hr) = 93.36[4] (lb/day)

PM10

PE1 (lb/day) = 24.0 (hr/day) x 11.0 (lb/hr) = 264.0 (lb/day)

CO

PE1 (lb/day) = 21.6 (hr/day) x 21.08 (lb/hr) = 455.33 (lb/day)

VOC

PE1 (lb/day) = 21.6 (hr/day) x 2.66 (lb/hr) = 57.46 (lb/day)

Normal Operation Emissions without startups/shutdowns

NOx

PE1 (lb/day) = 24.0 (hr/day) x 17.3 (lb/hr) = 415.2 (lb/day)

[4] Existing permit limit appears to be in error.

SOx

PE1 (lb/day) = 24.0 (hr/day) x 3.89 (lb/hr) = 93.36 (lb/day)

PM10

PE1 (lb/day) = 24.0 (hr/day) x 11.0 (lb/hr) = 264.0 (lb/day)

CO

PE1 (lb/day) = 24.0 (hr/day) x 31.4 (lb/hr) = 753.6 (lb/day)

VOC

PE1 (lb/day) = 24.0 (hr/day) x 2.8 (lb/hr) = 67.2 (lb/day)

Daily Summary/CTG (normal operation plus startup/shutdown)					
	NOx (lb/day)	**SOx (lb/day)**	**PM10 (lb/day)**	**CO (lb/day)**	**VOC (lb/day)**
Cold Start	72.0	0.0	0.0	1,185.0	72.0
Shutdown	65.74	0.0	0.0	232.68	10.32
Warm Start	0.0	0.0	0.0	0.0	0.0
Normal	373.68	93.36	264.0	455.33	57.46
Total	511.42	93.36	264.0	1,873.01	139.78

Daily Summary/CTG (normal operation without startup/shutdown)					
	NOx (lb/day)	**SOx (lb/day)**	**PM10 (lb/day)**	**CO (lb/day)**	**VOC (lb/day)**
Normal	415.2	93.36	264.0	753.6	67.2

Annual Summary/CTG					
	NOx (lb/yr)	**SOx (lb/yr)**	**PM10 (lb/yr)**	**CO (lb/yr)**	**VOC (lb/yr)**
Max	146,001	30,517	96,360	217,921	25,063

The total project annual max is the annual summary/CTG x 4 CTGs (used as Project PE2), as shown below.

Annual Summary Project					
	NOx (lb/yr)	SOx (lb/yr)	PM10 (lb/yr)	CO (lb/yr)	VOC (lb/yr)
Max	584,004	122,068	385,440	871,684	100,252

Maximum daily emissions occur on days with normal operation plus start/shutdown.

PE1		
Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	511.4	146,001
SO_X	93.4	30,517
PM_{10}	264.0	96,360
CO	1,873.0	217,921
VOC	139.8	25,063

2. Post-Project Potential to Emit (PE2)

There are no changes to any emissions factors and emissions limits for any of the CTGs.

The post-project potential to emit for the CTGs is equal to the pre-project potential to emit and summarized in the table below:

PE2		
Pollutant	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO_X	511.4	146,001
SO_X	93.4	30,517
PM_{10}	264.0	96,360
CO	1,873.0	217,921
VOC	139.8	25,063

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

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

Since facility emissions are already above the Offset and Major Source Thresholds for NOx, VOC, PM10, and CO emissions, SSPE2 calculations are not necessary.

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

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

Since facility emissions are already above the Offset and Major Source Thresholds for NOx, VOC, PM10, and CO emissions, SSPE2 calculations are not necessary.

5. Major Source Determination

Rule 2201 Major Source Determination:

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

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e., IC engines at a particular site at the facility for less than 12 months), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

This source is an existing Major Source for NOx, VOC, PM10, and CO emissions and will remain a Major Source for NOx, VOC, PM10, and CO. No change in other pollutants are proposed or expected as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore, the PSD Major Source threshold is 100 ton per year for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO_2	VOC	SO_2	CO	PM	PM_{10}
Estimated Facility PE before Project Increase	293	50	61	437	200	200
PSD Major Source Thresholds	100	100	100	100	100	100
PSD Major Source?	Yes	No	No	Yes	Yes	Yes

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

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

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

The emissions units within this project are fully offset emissions units located at a major source; therefore, BE = PE1.

7. SB 288 Major Modification

40 CFR Part 51.165 defines a SB 288 Major Modification 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, VOC, PM10, and CO, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if further SB 288 Major Modification calculation is required.

As calculated in the Calculation section above:

SB 288 Major Modification Thresholds			
Pollutant	**Project PE2 (lb/year)**	**Threshold (lb/year)**	**SB 288 Major Modification Calculation Required?**
NO_x	584,004	50,000	Yes
SO_x	N/A	80,000	No
PM_{10}	385,440	30,000	Yes
VOC	100,252	50,000	Yes

Since the project's PE2 surpasses the SB 288 Major Modification Thresholds for NOx, VOC, PM10, the project Net Emissions Increase (NEI) will be compared to the SB 288 Major Modification thresholds in order to determine if this project constitutes an SB 288 Major Modification.

The project NEI is the total of emission increases for every permit unit addressed in this project and is calculated as follows:

$NEI = \sum(PE2 - AE)$

Where: PE2 = The sum of all the PE2s for each permit unit in this project
AE = Actual emissions, as of a particular date, shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date, and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

The AE is used to calculate the NEI and make the SB 288 Major Modification determination in the following table.

See Appendix B for details associated with the selection of AE.

SB 288 Major Modification Calculation and Determination					
Pollutant	**PE2 (lb/year)**	**AE (lb/yr)**	**NEI (lb/yr)**	**Thresholds (lb/yr)**	**SB 288 Major Modification?**
NO_x	584,004	96,770	487,234	50,000	Yes
SO_x	N/A	N/A	N/A	80,000	No
PM_{10}	385,440	50,758	334,682	30,000	Yes
VOC	100,252	19,548	80,704	50,000	Yes

As demonstrated in the preceding table, this project does constitute an SB 288 Major Modification.

8. Federal Major Modification / New Major Source

Federal Major Modification

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

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is 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. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. In step 1, emission decreases cannot cancel out the increases. Step 2 allows consideration of the project's net emissions increase as described in 40 CFR 51.165 and the Federal Clean Air Act Section 182 (e), as applicable.

Step 1: Project Emissions Increase

For modified existing emissions units, according to 40 CFR 51.165(a)(2)(ii)(C), the project's emission increase for each pollutant is equal to the sum of the differences between the projected actual emissions (PAE) and the baseline actual emissions (BAE). Please note that in step 1, since the District is classified as extreme non-attainment for ozone, no NOx and VOC emission decreases associated with the proposed project shall be accounted for.

Project Emissions Increase = $\sum$(PAE – BAE)

As described in 40 CFR 51.165(a)(1)(xxviii)(B), when using historical data and company's expected business activity to determine PAE, the portion of the emissions after the project that the existing unit could have accommodated (Unused Baseline Capacity, UBC) before the project (during the same 24-month baseline period used to determine BAE) and that are unrelated to the particular project (including emissions increases due to product demand growth) are to be excluded.

Otherwise, according to 40 CFR 51.165(a)(1)(xxvii)(B)(4), when determining PAE, in lieu of using the method described in 40 CFR 51.165 (a)(1)(xxviii)(B)(1)-(3), *Projected Actual Emissions*, the owner/operator may elect to use emissions unit's Potential to Emit. If appropriate projected actual emissions are not provided by the applicant, then the emissions unit's Potential to Emit is used to calculate the emissions increase.

Since the project proponent has provided the required historical and projected operation data (see Appendix C) required to calculate PAE, the project emissions increase will be calculated as follows:

Project Emissions Increase = PAE – BAE – UBC

Where: PAE = Projected Actual Emissions, and
BAE = Baseline Actual Emissions
UBC = Unused baseline capacity

Projected Actual Emissions (PAE)

LPGP has estimated the projected actual emissions (PAE) based on historical data including scheduled outages, startups, and load; business activity driven by market conditions/load including impacts from hydro, wind, solar generations, and imports; and resultant market prices.

There is no increase in design capacity or potential to emit; therefore, the PAE is equal to the annual emission rate at which the unit is projected to emit in any one year, selected by LPGP, within 5 years after the unit resumes normal operation. LPGP has selected the PAE that represents the best case estimate of annual emissions based on a projection of startup and shutdown events and normal operations from 2023 through 2027.

Projected Fuel Consumption		
Equipment	**Total Fuel (MMBtu/Unit)**	**Total Project (MMBtu/yr)**
CTG 1 - 4	2,796,777	11,187,109

PAE Calculation (Total for all Units)				
Parameter	**NOx**	**PM10**	**VOC**	**Reference**
Factor (lb/MMscf)		2.7389	0.9707	Conservatively selected as average emissions factor in last 5 years from Annual Emissions Inventories
Factor (lb/MMBtu)	0.0072	0.0027	0.001	Conservatively selected as average emissions factor in last 5 years from CEMS (NOx) and Annual Emissions Inventories (PM10, VOC ÷ 1020 Btu/scf to get lb/MMBtu)
MMBtu/yr	11,187,109	11,187,109	11,187,109	Highest year, 2025, PAE Case B

PAE (lb/yr)	80,547.49	30,205.20	11,187.11

There are many factors that could affect the business activity for projected future operations. As more renewables come online LPGP must be more nimble and may be required to startup and shutdown more often for but for shorter durations driven by varying conditions that may impact the renewables. This project is part of the effort to be more available throughout the year.

Details of the modeled PAE is included as Appendix C.

Since the owner/operater has estimated the Projected Actual Emissions (PAE) based on all information relevant to the emission unit(s), the following permit condition will be added to the permit:

- *If the emission unit's actual emissions exceed 80,547.5 lb NOx per calendar year, 30,205.20 lb PM10 per calendar year, or 11,187.1 lb VOC per calendar year, the permittee must report to the District the annual XXX emissions as calculated pursuant to paragraph 40 CFR 51.165(a)(6)(iii) and any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection. Such information must be submitted to the District for a period of 5 calendar years beginning the year of operation under ATC S-3412-1-22, '-2-23, '-3-23, and '-4-18 and shall be submitted within 60 days of the end of each calendar year. [District Rule 2201] Y*

Baseline Actual Emissions (BAE)

For electric utility steam generating units, according to according to 40 CFR 51.165(a)(1)(xxxv)(B), the BAE are calculated as the average, in tons/year, at which the emissions unit actually emitted during any 24-month period selected by the operator within the previous 5-year period.

NOx BAE		
Unit	**Baseline Period**	**BAE (lb/yr)**
CTG 1	10/2019 - 9/2021	30,982
CTG 2	10/2019 - 9/2021	29,768
CTG 3	10/2019 - 9/2021	14,568
CTG 4	10/2019 - 9/2021	21,452

PM10 BAE		
Unit	**Baseline Period**	**BAE (lb/yr)**
CTG 1	10/2019 - 9/2021	7,028
CTG 2	10/2019 - 9/2021	16,022
CTG 3	10/2019 - 9/2021	17,077

CTG 4	10/2019 - 9/2021	10,631

VOC BAE		
Unit	**Baseline Period**	**BAE (lb/yr)**
CTG 1	1/2021 - 12/2022	4,335
CTG 2	1/2021 - 12/2022	5,010
CTG 3	1/2021 - 12/2022	5,606
CTG 4	1/2021 - 12/2022	4,597

LPGP provided the Actual Emissions (AE) for each CTG over the prior 5 years on a monthly basis. The BAE was selected based on continuous 24-month periods per pollutant. The representative 24-month periods for the respective pollutants are identified in the tables included as Appendix B.

Unused Baseline Capacity (UBC)

LPGP has estimated UBC that are subtracted from the PAE following APR 1150 and 40 CFR 51.165(a)(1)(xxviii)(B). This is defined as the portion of the emissions after the project that the existing unit(s) could have accommodated before the project (during the same 24-month baseline period used to determine BAE by pollutant) and that are unrelated to the particular project (including emissions increases due to product demand growth). To quantify the UBC LPGP used actual historical operating data from annual emissions reports to identify the highest monthly operating hours within the BAE baseline period and the representative actual operating hours (average monthly) within the BAE baseline period to develop a ratio which was then applied to the baseline actual emissions rate. This approach takes into account all startups and shutdowns as part of the reported operations.

The following calculation was used to quantify the UBC:

UBC = (Max Operation / Actual Operation x BAE) - BAE

UBC NOx				
Unit	**Max Operation (hr/month)**	**Actual Operation (hr/month)**	**BAE NOx (lb/yr)**	**UBC NOx (lb/yr)**
CTG 1	559.07	214.01	30,982.19	49,954.31
CTG 2	534.92	197.99	29,768.28	50,658.22
CTG 3	556.63	189.19	14,567.75	28,293.15
CTG 4	491.53	176.61	21,451.72	38,251.38

UBC PM10				
Unit	**Max Operation (hr/month)**	**Actual Operation (hr/month)**	**BAE PM10 (lb/yr)**	**UBC PM10 (lb/yr)**
CTG 1	559.07	214.01	7,027.71	11,331.19
CTG 2	534.92	197.99	16,022.43	27,266.17
CTG 3	556.63	189.19	17,077.03	33,166.57
CTG 4	491.53	176.61	10,631.20	18,956.90

UBC VOC				
Unit	**Max Operation (hr/month)**	**Actual Operation (hr/month)**	**BAE VOC (lb/yr)**	**UBC VOC (lb/yr)**
CTG 1	539.04	157.08	4,335.23	10,541.67
CTG 2	499.88	183.33	5,009.86	8,650.34
CTG 3	556.63	211.70	5,605.95	9,133.95
CTG 4	427.37	173.32	4,597.18	6,738.52

LPGP provided the Actual Operating Hours for each CTG over the prior 5 years on a monthly basis. The maximum and actual (average) hours were determined for the matching continuous 24-month periods per pollutant. The parameters summarized above are identified in the tables included as Appendix B.

Project Emissions Increase

The Project Emissions Increase (PEI) is calculated using the above summarized tables as follows:

Project emissions increase = Σ(PAE – BAE – UBC)

The PAE, reduced by the UBC, is less than the BAE, indicating that the project will result in a decrease in emissions (i.e., PEI <0) for NOx, VOCs and PM. This facility is not a major source for SOx. Therefore, Federal Major Modification calculations are not performed for SOx emissions. Per Rule 2201, CO emissions are not part of Federal Major Modification calculations.

The project's combined total emission increases are calculated in Appendix D and summarized in the following tables.

	PEI NOx			
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	20,136.80	30,982.19	49,954.31	-60,799.70
CTG 2	20,136.80	29,768.28	50,658.22	-60,289.70
CTG 3	20,136.80	14,567.75	28,293.15	-22,724.10
CTG 4	20,136.80	21,451.72	38,251.38	-39,566.30
			Sum	-183,379.81

	PEI PM10			
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	7,551.30	7,027.71	11,331.19	-10,807.60
CTG 2	7,551.30	16,022.43	27,266.17	-35,737.30
CTG 3	7,551.30	17,077.03	33,166.57	-42,692.30
CTG 4	7,551.30	10,631.20	18,956.90	-22,036.80
			Sum	-111,274.00

	PEI VOC			
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	2,796.78	4,335.23	10,541.67	-12,080.12
CTG 2	2,796.78	5,009.86	8,650.34	-10,863.42
CTG 3	2,796.78	5,605.95	9,133.95	-11,943.12
CTG 4	2,796.78	4,597.18	6,738.52	-8,538.92
			Sum	-43,425.59

The PEIs are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	**Total Emissions Increases (lb/yr)[5]**	**Thresholds (lb/yr)**	**Federal Major Modification?**
NO_x*	0.0	0	No
VOC*	0.0	0	No
PM_{10}	0.0	30,000	No
$PM_{2.5}$	0.0	20,000	No
SO_x	N/A	80,000	No

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

Since none of the Federal Major Modification Thresholds are being surpassed with this project, this project does not constitute a Federal Major Modification and step 2 is not required and no further discussion is required.

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10

I. Project Location Relative to Class 1 Area

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be a existing PSD Major Source. Because the project is not located within 10 km (6.2 miles) of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Project Emission Increase – Significance Determination

a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds

[5] The values calculated above where all less than zero, and therefore, set to zero.

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no futher PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO_2	**SO_2**	**CO**	**PM**	**PM_{10}**
Total PE from New and Modified Units	292	61	436	193	193
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	Yes	Yes	Yes	Yes	Yes

As demonstrated in the table above, because the post-project potential to emit from all new and modified emission units is greater than at least one PSD significant emission increase threshold, further analysis is required to determine if the project will result in an increase greater than the PSD significant emission increase thresholds, see step b. below for further analysis.

b. Evaluation of Calculated Emission Increases vs PSD Significant Emission Increase Thresholds

In this step, the emission increase for each subject pollutant is compared to the PSD significant emission increase threshold, and if the emission increase for each subject pollutant is below their threshold, no futher analysis is required.

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

Emission Increase = PAE – BAE - UBC

Where: PAE = Projected Actual Emissions, and
BAE = Baseline Actual Emissions
UBC = Unused baseline capacity

The project's total emission increases, as calculated in the Federal Major Modification section above, are listed below and compared to the PSD significant emission increase thresholds in the following table.

PSD Significant Emission Increase Determination: Emission Increase (tons/year)					
	NO_2	SO_2	CO	PM	PM_{10}
Emission Increases (only)	0	0	0	0	0
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	No	No	No	No	No

As shown in the table above, the emission increases from the project, for all new and modified emission units, does not exceed any of the PSD significant emission increase thresholds. Therefore, the project does not result in a PSD major modification and no further discussion is required.

10. 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. There is no increase in permitted emissions and therefore QNEC = 0.

VIII. Compliance Determination

Rule 1080 Stack Monitoring

This facility is subject to this rule and has existing conditions associated with Continuous Emissions Monitoring (CEM) systems. Continued compliance is expected.

Rule 1081 Source Sampling

This facility is subject to this rule and has existing conditions to ensure continued compliance with applicable emissions limitations.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,

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

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

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

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

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

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

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

AIPE = PE2 – HAPE

Where,

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

HAPE = PE1 x (EF2/EF1)

Where,

PE1 = The emissions unit's PE prior to modification or relocation, (lb/day)
EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1
EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

AIPE = PE2 – (PE1 ∗ (EF2 / EF1))

There are no changes in emissions factors or emissions i.e. PE2 = PE1 and EF2 = EF1.

AIPE = 0.

As demonstrated above, the AIPE is not greater than 2.0 lb/day for PM_{10} emissions for any baghouse. Therefore, BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does constitute an SB 288 Major Modification, but not a Federal Major Modification for NOx, PM10, and VOC. Therefore, BACT is triggered for these pollutants for each emissions unit.

2. BACT Guideline

BACT Guideline 3.4.2, applies to the gas turbine engines [Gas Turbine ≥ 50 MW, Uniform Load, with Heat Recovery] (See Appendix E)

3. Top-Down BACT Analysis

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

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

NO_X: 2.5 ppmv dry @ 15% O2 (1-hr)
PM_{10}: Air inlet filter cooler, lube oil vent coalescer and natural gas fuel, or equal
VOC: 2.0 ppmv @ 15% O2

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

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

Offset Determination (lb/year)					
	NO_X	**SO_X**	**PM_{10}**	**CO**	**VOC**
SSPE2	585,263	122,086	400,432	873,737	100,975
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of District Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NOX, SOx, PM10, CO, and VOC. Therefore, offset calculations will be required for this project.

District Offset Quantities Calculation

As demonstrated above, the facility has an SSPE1 for NOx, SOx, PM10, CO, and VOC greater than the offset thresholds. Therefore, offset calculations will be required for this project.

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

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

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

otherwise,

BE = HAE

Note that PE2 = PE1 = BE for this project. Therefore, no offsets are required.

C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, public noticing is required for:

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
c. Any project which results in the offset thresholds being surpassed,
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
e. Any project which results in a Title V significant permit modification

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

As demonstrated in Sections VII.C.7 and VII.C.8, this project does trigger an SB 288 Major Modification. Therefore, public noticing for this project for SB 288 Major Modification purposes is required.

b. PE > 100 lb/day

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

c. Offset Threshold

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	**SSPE1 (lb/year)**	**SSPE2 (lb/year)**	**Offset Threshold**	**Public Notice Required?**
NO_X	583,263	583,263	20,000 lb/year	No
SO_X	122,086	122,086	54,750 lb/year	No
PM_{10}	400,032	400,032	29,200 lb/year	No
CO	873,737	873,737	200,000 lb/year	No
VOC	100,975	100,975	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

SSIPE Public Notice Thresholds					
Pollutant	**SSPE2 (lb/year)**	**SSPE1 (lb/year)**	**SSIPE (lb/year)**	**SSIPE Public Notice Threshold**	**Public Notice Required?**
NO_x	583,263	583,263	0	20,000 lb/year	No
SO_x	122,086	122,086	0	20,000 lb/year	No
PM_{10}	400,032	400,032	0	20,000 lb/year	No
CO	873,737	873,737	0	20,000 lb/year	No
VOC	100,975	100,975	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.

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project does not constitute a Title V significant modification. Therefore, public noticing for Title V significant modifications is not required for this project.

2. Public Notice Action

As discussed above, public noticing is required for this project because an SB 288 Modification was triggered for emissions of NOx, VOC, and PM10.

Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

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

No changes to DEL conditions are required to demonstrate compliance with Rule 2201.

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

2. Monitoring

No changes to monitoring conditions are required to demonstrate compliance with Rule 2201.

3. Recordkeeping

No changes in recordkeeping requirements are proposed for compliance with Rule 2201.

4. Reporting

No changes in reporting requirements are required to demonstrate compliance with Rule 2201.

Rule 2410 Prevention of Significant Deterioration

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

Rule 2540 Acid Rain Program

This facility is subject to this rule and has existing conditions to ensure continued compliance 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.

In accordance with Rule 2520, Minor Permit Modifications are permit modifications that:

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;
7. Do not grant or modify a permit shield.

Additionally, Section 11.4 requires a description of the proposed change, the emissions resulting from the change, any new applicable requirements that will apply if the change occurs, suggested draft permits, compliance certification and an EPA 45-day review period of the proposed permit modification (or a shorter period if EPA has notified the District that EPA will not object to issuance of the permit modification, whichever is first).

As discussed above, the facility has applied for a Certificate of Conformity (COC) and the District will forward to EPA, for a 45-day review period, this application review which includes the proposed modified Title V permit [i.e. proposed ATC(s)] and the compliance certification form which demonstrates compliance with the minor permit modification requirements in Section 11.4. 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 (NSPS)

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

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

No newly constructed or reconstructed units are proposed in this project, nor is the unit being modified (as defined above). Since the permittee is retrofitting the unit with an equivalent size, or smaller, burner for compliance with District rules and regulations, the requirements of these sections do not apply to the unit.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the IC engine is fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Also, based on past inspections of the facility continued compliance is expected.

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

District Policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District's significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1.
As demonstrated above, there are no increases in emissions associated with this project, therefore a health risk assessment is not necessary, and no further risk analysis is required.

Compliance with District Rule 4102 requirements is expected.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

There is no proposed change in PM10 permitted emissions. Continued compliance with the PM concentration limit of 0.1 gr/dscf is expected.

District Rule 4703 Stationary Gas Turbines

The purpose of this rule is to limit oxides of nitrogen (N0x) emissions from stationary gas turbine systems.

No change in compliance status is expected with installation of the new foggers. Continued compliance is expected.

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO 2) not exceed 0.2% of the exhaust by volume. The turbine combust natural gas only and currently operate in compliance with the rule.

No change in compliance status is expected with installation of new the foggers.

Continued compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

40 CFR 60 SUBPART GG STANDARDS OF PERFORMANCE FOR STATIONARY GAS TURBINES

The GTGs in this project are subject to this rule. Compliance with this rule has already been established and there are not changes to operations that would impact compliance. Continued compliance with the requirements of this rule are expected.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue ATC S-3412-1-22, '-2-23, '-3-23, and '-4-18 subject to all of the existing permit conditions and the following new conditions:

If the emission unit's actual emissions exceed 80,547.5 lb NOx per calendar year, 30,205.20 lb PM10 per calendar year, or 11,187.1 lb VOC per calendar year, the permittee must report to the District the annual XXX emissions as calculated pursuant to paragraph 40 CFR 51.165(a)(6)(iii) and any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection. Such information must be submitted to the District for a period of 5 calendar years beginning the year of operation under ATC S-3412-1-22, '-2-23, '-3-23, and '-4-18 and shall be submitted within 60 days of the end of each calendar year. [District Rule 2201] Y

X. Billing Information

Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
S-3412-1-22	3020-08B-H	289,000 kW Gas Turbine	$15,843
S-3412-2-23	3020-08B-H	289,000 kW Gas Turbine	$15,843
S-3412-3-23	3020-08B-H	289,000 kW Gas Turbine	$15,843
S-3412-4-18	3020-08B-H	289,000 kW Gas Turbine	$15,843

A: Current PTO(s)
B: Actual Emissions Documentation
C: Projected Actual Emissions Documentation
D: UBC/PEI Documentation
E: BACT Guideline 3.4.2
F: Top Down BACT Analysis
G: HRA Summary (RESERVED)
H: Quarterly Net Emissions Change (RESERVED)
I: Emission Profile(s) (RESERVED)
J: Compliance Certification (RESERVED)

APPENDIX A
Current PTOs

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-3412-3-20 **EXPIRATION DATE:** 01/31/2023

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING)

PERMIT UNIT REQUIREMENTS

1. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
4. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit
8. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

10. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit

14. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

15. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

16. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

18. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

20. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

21. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

23. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

24. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

25. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

26. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

27. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

28. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

29. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Tittle V annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

30. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

31. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

32. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

33. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

34. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

35. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

36. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

37. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

38. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

39. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

40. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

41. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

42. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

43. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

44. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

45. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

46. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

47. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

48. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

49. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

50. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

51. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

52. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

53. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

54. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

55. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

56. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

57. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

62. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

63. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

64. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

65. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

66. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

69. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

70. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

71. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

75. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

76. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

77. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

78. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

79. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

80. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

81. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

82. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

83. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

84. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-3412-2-20 **EXPIRATION DATE:** 01/31/2023

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING)

PERMIT UNIT REQUIREMENTS

1. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
4. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit
8. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

10. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit

14. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

15. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

16. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

18. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

20. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

21. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

23. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

24. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

25. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

26. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

27. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

28. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

29. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Tittle V annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

30. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

31. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

32. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

33. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

34. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

35. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

36. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

37. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

38. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

39. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

40. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

41. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

42. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

43. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

44. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

45. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

46. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

47. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

48. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

49. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

50. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

51. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

52. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

53. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

54. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

55. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

56. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

57. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

62. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

63. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

64. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

65. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

66. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

69. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

70. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

71. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

75. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

76. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

77. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

78. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

79. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

80. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

81. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

82. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

83. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

84. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-3412-1-19 **EXPIRATION DATE:** 01/31/2023

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH INLET FOGGERS, DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING)

PERMIT UNIT REQUIREMENTS

1. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
4. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit
8. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

10. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit

14. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

15. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

16. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

18. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

20. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

21. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

23. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

24. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

25. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

26. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

27. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

28. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

29. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Title V Annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

30. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

31. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

32. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

33. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

34. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

35. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

36. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

37. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

38. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

39. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

40. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

41. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

42. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

43. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

44. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

45. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

46. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

47. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

48. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

49. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

50. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

51. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

52. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

53. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

54. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

55. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

56. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

57. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

62. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

63. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

64. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

65. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

66. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

69. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

70. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

71. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

75. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

76. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

77. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

78. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

79. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

80. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

81. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

82. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

83. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

84. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

APPENDIX B
Actual Emissions Documentation

Operating Month	Unit 1 (lb/month)	Unit 1 Annual Avg (lb/yr)	Unit 2 (lb/month)	Unit 2 Annual Avg (lb/yr)	Unit 3 (lb/month)	Unit 3 Annual Avg (lb/yr)	Unit 4 (lb/month)	Unit 4 Annual Avg (lb/yr)	Sum (lb/month)	Selected Baseline
01/2018	0.00		0		0		0			
02/2018	0.00		10.7		150.27		54.47			
03/2018	0.00		132.9		91.27		0			
04/2018	0.00		194.59		159.54		66.89			
05/2018	0.00		0		0		0			
06/2018	676.58		898.01		737.45		0			
07/2018	2221.29		2662.21		1905.06		226.77			
08/2018	2891.25		3364.61		2549.32		297.51			
09/2018	1821.67		1836.93		894.89		0			
10/2018	3257.46		3558.02		280.77		0			
11/2018	3082.54		2891.8		0		0			
12/2018	2780.67		3032.56		0		0			
01/2019	0.12		0.15		0		0			
02/2019	0.00		0		0		0			
03/2019	0.00		0		0		0			
04/2019	0.00		0		0		0			
05/2019	0.00		0		0		0			
06/2019	15.92		38.48		38.1		0			
07/2019	625.37		1087.8		2512.73		62.22			
08/2019	742.14		1148.35		1009.49		351.57			
09/2019	523.03		1025.14		758.82		314.14			
10/2019	706.85		1263.48		1220.5		596.32			
11/2019	1260.90		2121.66		0		1112.3			
12/2019	1219.33	10,912.56	1549.04	13,408.22	738.89	6,523.55	614.57	1,848.38	32,692.71	
01/2020	183.82	11,004.47	686.85	13,751.64	563	6,805.05	531.67	2,114.22	33,675.38	
02/2020	105.74	11,057.34	282.1	13,887.34	231.06	6,845.45	0	2,086.98	33,877.11	
03/2020	914.13	11,514.41	2952.05	15,296.92	2124.43	7,862.03	591.71	2,382.84	37,056.20	
04/2020	230.67	11,629.74	216.72	15,307.98	0	7,782.26	0.75	2,349.77	37,069.75	
05/2020	61.99	11,660.74	325.66	15,470.81	298.3	7,931.41	172.61	2,436.07	37,499.03	
06/2020	261.05	11,452.97	828.51	15,436.06	819.99	7,972.68	528.32	2,700.23	37,561.94	
07/2020	355.47	10,520.06	1257.03	14,733.47	1379.22	7,709.76	1122.61	3,148.15	36,111.44	
08/2020	829.29	9,489.08	2667.19	14,384.76	3371.44	8,120.82	2172.98	4,085.89	36,080.55	
09/2020	1051.30	9,103.90	3142.96	15,037.78	2700.53	9,023.64	2170.09	5,170.93	38,336.25	
10/2020	1606.38	8,278.36	5874.34	16,195.94	3635.4	10,700.95	3666.15	7,004.01	42,179.26	
11/2020	522.67	6,998.42	1822.11	15,661.09	2677.23	12,039.57	1490.14	7,749.08	42,448.16	
12/2020	421.02	5,818.60	2037.45	15,163.54	2970.83	13,524.98	593.51	8,045.83	42,552.95	
01/2021	0.00	5,818.54	300.43	15,313.68	514.17	13,782.07	392.51	8,242.09	43,156.38	
02/2021	0.00	5,818.54	0	15,313.68	27.52	13,795.83	19.76	8,251.97	43,180.02	

Operating Month	Unit 1 (lb/month)	Unit 1 Annual Avg (lb/yr)	Unit 2 (lb/month)	Unit 2 Annual Avg (lb/yr)	Unit 3 (lb/month)	Unit 3 Annual Avg (lb/yr)	Unit 4 (lb/month)	Unit 4 Annual Avg (lb/yr)	Sum (lb/month)	Selected Baseline
03/2021	0.00	5,818.54	228.1	15,427.73	526.89	14,059.27	52.22	8,278.08	43,583.62	
04/2021	26.11	5,831.59	0	15,427.73	387.01	14,252.78	48.32	8,302.24	43,814.34	
05/2021	156.58	5,909.88	160.86	15,508.16	474.02	14,489.79	144.88	8,374.68	44,282.51	
06/2021	774.58	6,289.21	1144.67	16,061.25	1683.77	15,312.62	1243.59	8,996.47	46,659.55	
07/2021	1497.84	6,725.45	1711.15	16,372.93	3424.6	15,768.56	1972.47	9,951.60	48,818.54	
08/2021	1013.09	6,860.92	922.34	16,259.92	2558.42	16,543.02	1211.82	10,381.72	50,045.58	
09/2021	856.60	7,027.71	550.15	16,022.43	1826.83	17,077.03	813.1	10,631.20	50,758.37	<<
10/2021	101.66	6,725.11	228.01	15,504.69	826.15	16,879.85	217.28	10,441.68	49,551.33	
11/2021	210.47	6,199.90	381.5	14,634.61	1337.54	17,548.62	343.36	10,057.21	48,440.34	
12/2021	332.26	5,756.36	395.64	14,057.91	959.52	17,658.94	170.64	9,835.25	47,308.46	
01/2022	0.00	5,664.45	0	13,714.49	19.42	17,387.15	0	9,569.41	46,335.50	
02/2022	0.00	5,611.58	0	13,573.44	122.26	17,332.75	264.76	9,701.79	46,219.56	
03/2022	183.73	5,246.38	148.64	12,171.73	119.52	16,330.29	501.56	9,656.72	43,405.12	
04/2022	551.82	5,406.96	1028.81	12,577.78	695.39	16,677.99	1907.22	10,609.95	45,272.68	
05/2022	301.84	5,526.88	437.75	12,633.82	372.44	16,715.06	1122.81	11,085.05	45,960.81	
06/2022	948.47	5,870.59	1046.6	12,742.87	435.71	16,522.92	907.37	11,274.58	46,410.96	
07/2022	1694.82	6,540.27	1702.31	12,965.51	888.04	16,277.33	1746.4	11,586.47	47,369.58	
08/2022	1758.18	7,004.71	2124.29	12,694.06	1239.54	15,211.38	2179.89	11,589.93	46,500.08	
09/2022	2350.41	7,654.27	2366.75	12,305.95	1535.91	14,629.07	2687.77	11,848.77	46,438.06	
10/2022	1940.43	7,821.29	2293.91	10,515.74	1523.01	13,572.87	2532.7	11,282.04	43,191.94	
11/2022	2599.48	8,859.70	3163.76	11,186.56	1761.91	13,115.21	1546.84	11,310.39	44,471.86	
12/2022	2906.53	10,102.45	3847.65	12,091.66	1451.62	12,355.61	3013.87	12,520.57	47,070.29	

Operating Month	Unit 1 (lb/month)	Unit 1 Annual Avg (lb/yr)	Unit 2 (lb/month)	Unit 2 Annual Avg (lb/yr)	Unit 3 (lb/month)	Unit 3 Annual Avg (lb/yr)	Unit 4 (lb/month)	Unit 4 Annual Avg (lb/yr)	Sum (lb/month)	Baseline Selection
01/2018	0.00		0		0		0			
02/2018	0.00		264.17		481.94		219.51			
03/2018	0.00		256.33		271.49		0			
04/2018	0.00		432.17		434.38		193.34			
05/2018	0.00		0		0		0			
06/2018	1508.37		1396.55		1149.28		0			
07/2018	2735.17		3283.2		2588.71		493.78			
08/2018	4374.82		4341.63		4046.48		708.83			
09/2018	2687.10		2296.54		1422.64		0			
10/2018	4731.44		4731.52		723.69		0			
11/2018	4529.89		3695.41		0		0			
12/2018	3957.05		4110.9		0		0			
01/2019	7.35		13.82		0		0			
02/2019	0.00		0		0		0			
03/2019	0.00		0		0		0			
04/2019	0.00		0		0		0			
05/2019	0.00		0		0		0			
06/2019	218.44		213.28		240.4		0			
07/2019	2395.47		2598.5		2296.27		844.71			
08/2019	2985.91		3182.55		1079.87		2596.32			
09/2019	2150.33		2631		859.13		1951.85			
10/2019	3168.73		3517.92		1262.54		3861.51			
11/2019	4669.73		5002.19		0		5893.43			
12/2019	4554.56	22,337.18	3937.51	22,952.60	1093.4	8,975.11	3274.61	10,018.95	64,283.84	
01/2020	1023.90	22,849.13	998.4	23,451.80	498.77	9,224.50	1090.13	10,564.01	66,089.44	
02/2020	531.53	23,114.90	448.21	23,543.82	252.95	9,110.00	0	10,454.26	66,222.98	
03/2020	4007.28	25,118.54	3783.88	25,307.59	1670.5	9,809.51	978.06	10,943.29	71,178.93	
04/2020	1102.75	25,669.91	375.84	25,279.43	0	9,592.32	30.56	10,861.90	71,403.56	
05/2020	441.65	25,890.74	611.76	25,585.31	192.8	9,688.72	304.62	11,014.21	72,178.98	
06/2020	1379.87	25,826.49	1253.12	25,513.59	596.13	9,412.14	853.2	11,440.81	72,193.03	
07/2020	1941.41	25,429.61	1938.61	24,841.30	1154.55	8,695.06	1515.57	11,951.70	70,917.67	
08/2020	3271.93	24,878.16	3796.92	24,568.94	1972.88	7,658.26	2043.28	12,618.93	69,724.29	
09/2020	4603.22	25,836.22	4245.95	25,543.65	1800.17	7,847.03	2363.77	13,800.81	73,027.71	
10/2020	6773.52	26,857.26	7481.03	26,918.40	2815.82	8,893.09	4401.82	16,001.72	78,670.47	
11/2020	2362.60	25,773.62	2486.6	26,314.00	1869.03	9,827.61	2101.68	17,052.56	78,967.79	
12/2020	2037.26	24,813.72	2656.16	25,586.63	2250.97	10,953.09	942.55	17,523.84	78,877.28	
01/2021	0.00	24,810.05	1045.76	26,102.60	570.82	11,238.50	880.43	17,964.05	80,115.20	
02/2021	0.00	24,810.05	0	26,102.60	48.58	11,262.79	82.02	18,005.06	80,180.50	

Operating Month	Unit 1 (lb/month)	Unit 1 Annual Avg (lb/yr)	Unit 2 (lb/month)	Unit 2 Annual Avg (lb/yr)	Unit 3 (lb/month)	Unit 3 Annual Avg (lb/yr)	Unit 4 (lb/month)	Unit 4 Annual Avg (lb/yr)	Sum (lb/month)	Baseline Selection
03/2021	0.00	24,810.05	895.28	26,550.24	629.78	11,577.68	163.95	18,087.04	81,025.01	
04/2021	745.80	25,182.95	0	26,550.24	417.35	11,786.36	164.08	18,169.08	81,688.63	
05/2021	972.51	25,669.20	1263.84	27,182.16	615.76	12,094.24	397.66	18,367.91	83,313.51	
06/2021	3510.57	27,315.27	3488.74	28,819.89	1822.41	12,885.24	2245.87	19,490.84	88,511.24	
07/2021	6368.35	29,301.71	5242.5	30,141.89	3232.48	13,353.35	4282.28	21,209.63	94,006.58	
08/2021	4536.07	30,076.79	3061.95	30,081.59	2336.17	13,981.50	2965.69	21,394.31	95,534.19	
09/2021	3961.14	30,982.19	2004.39	29,768.28	2031.64	14,567.75	2066.67	21,451.72	96,769.94	<<
10/2021	546.71	29,671.18	1038.37	28,528.51	1261.97	14,567.47	991.28	20,016.61	92,783.77	
11/2021	992.95	27,832.79	1383.9	26,719.36	1623.78	15,379.36	842.43	17,491.11	87,422.62	
12/2021	1832.97	26,472.00	1653.07	25,577.14	1285.27	15,475.29	566.03	16,136.82	83,661.25	
01/2022	0.00	25,960.05	0	25,077.94	27.82	15,239.82	0	15,591.75	81,869.56	
02/2022	0.00	25,694.28	0	24,853.84	251.72	15,239.20	637.37	15,910.44	81,697.76	
03/2022	304.26	23,842.77	303.34	23,113.57	242.67	14,525.29	958.77	15,900.79	77,382.42	
04/2022	1092.82	23,837.81	2113.01	23,982.15	1568.72	15,309.65	4016.82	17,893.92	81,023.53	
05/2022	652.75	23,943.36	803.64	24,078.09	844.87	15,635.68	2302.85	18,893.04	82,550.17	
06/2022	1869.27	24,188.06	1997.42	24,450.24	1154.9	15,915.07	1614.81	19,273.84	83,827.21	
07/2022	3224.93	24,829.82	3037.11	24,999.49	2186.23	16,430.91	3512.83	20,272.47	86,532.69	
08/2022	3562.80	24,975.25	3647.13	24,924.60	2800.93	16,844.93	4423.34	21,462.50	88,207.28	
09/2022	3764.15	24,555.72	3250.37	24,426.81	2968.08	17,428.89	4522.21	22,541.72	88,953.14	
10/2022	3271.73	22,804.82	3428.35	22,400.47	3210.5	17,626.23	4450.51	22,566.07	85,397.59	
11/2022	4648.65	23,947.85	5437.91	23,876.12	4218.67	18,801.05	3290.63	23,160.54	89,785.56	
12/2022	4513.82	25,186.13	6023.01	25,559.55	3342.14	19,346.63	4193.45	24,785.99	94,878.30	

Operating Month	Unit 1 (lb/month)	Unit 1 Annual Avg (lb/yr)	Unit 2 (lb/month)	Unit 2 Annual Avg (lb/yr)	Unit 3 (lb/month)	Unit 3 Annual Avg (lb/yr)	Unit 4 (lb/month)	Unit 4 Annual Avg (lb/yr)	Sum (lb/month)	Selected Baseline
01/2018	0.00		0		0		0			
02/2018	0.00		0.83		15.46		16.41			
03/2018	0.00		10.36		9.39		0			
04/2018	0.00		15.16		16.42		20.15			
05/2018	0.00		0		0		0			
06/2018	62.57		69.98		75.88		0			
07/2018	205.42		207.46		196.03		68.32			
08/2018	267.38		262.19		262.33		89.63			
09/2018	168.47		143.15		92.09		0			
10/2018	301.25		277.26		28.89		0			
11/2018	285.07		225.35		0		0			
12/2018	257.15		236.32		0		0			
01/2019	0.01		0.01		0		0			
02/2019	0.00		0		0		0			
03/2019	0.00		0		0		0			
04/2019	0.00		0		0		0			
05/2019	0.00		0		0		0			
06/2019	1.59		2.18		1.08		0			
07/2019	62.54		61.74		71.17		7.72			
08/2019	74.21		65.18		28.59		43.64			
09/2019	52.30		58.18		21.49		39			
10/2019	70.69		71.71		34.57		74.03			
11/2019	126.09		120.42		0		138.08			
12/2019	121.93	1,028.34	87.92	957.70	20.93	437.16	76.29	286.64	2,709.84	
01/2020	22.98	1,039.83	23.14	969.27	20.44	447.38	22.93	298.10	2,754.58	
02/2020	13.22	1,046.44	9.5	973.61	8.39	443.85	0	289.90	2,753.80	
03/2020	114.27	1,103.57	99.46	1,018.16	77.14	477.72	25.52	302.66	2,902.11	
04/2020	28.83	1,117.99	7.3	1,014.23	0	469.51	0.03	292.60	2,894.33	
05/2020	7.75	1,121.86	10.97	1,019.71	10.83	474.93	7.44	296.32	2,912.82	
06/2020	32.63	1,106.89	27.91	998.68	29.78	451.88	22.79	307.71	2,865.16	
07/2020	44.43	1,026.40	42.35	916.12	50.08	378.90	48.42	297.76	2,619.18	
08/2020	103.66	944.54	89.86	829.96	122.43	308.95	93.72	299.81	2,383.26	
09/2020	131.41	926.01	105.89	811.33	98.06	311.94	93.6	346.61	2,395.89	
10/2020	200.80	875.78	197.91	771.65	132.01	363.50	158.12	425.67	2,436.60	
11/2020	65.33	765.91	61.39	689.67	97.22	412.11	64.27	457.80	2,325.49	
12/2020	52.63	663.65	68.64	605.83	107.88	466.05	25.6	470.60	2,206.13	
01/2021	0.00	663.65	206.47	709.06	189.65	560.87	200.02	570.61	2,504.19	

Operating Month	Unit 1 (lb/month)	Unit 1 Annual Avg (lb/yr)	Unit 2 (lb/month)	Unit 2 Annual Avg (lb/yr)	Unit 3 (lb/month)	Unit 3 Annual Avg (lb/yr)	Unit 4 (lb/month)	Unit 4 Annual Avg (lb/yr)	Sum (lb/month)	Selected Baseline
02/2021	0.00	663.65	0	709.06	10.15	565.95	10.07	575.65	2,514.31	
03/2021	0.00	663.65	156.76	787.44	194.35	663.12	26.61	588.95	2,703.16	
04/2021	22.40	674.85	0	787.44	142.75	734.50	24.62	601.26	2,798.05	
05/2021	134.32	742.01	110.55	842.72	174.84	821.92	73.83	638.18	3,044.83	
06/2021	664.47	1,073.45	786.67	1,234.96	621.06	1,131.91	633.72	955.04	4,395.36	
07/2021	1284.91	1,684.63	1175.97	1,792.08	1263.17	1,727.91	1005.15	1,453.75	6,658.37	
08/2021	869.08	2,082.07	633.87	2,076.42	943.68	2,185.45	617.53	1,740.70	8,084.64	
09/2021	734.83	2,423.33	378.09	2,236.38	673.83	2,511.62	414.35	1,928.37	9,099.70	
10/2021	87.21	2,431.59	156.7	2,278.87	304.73	2,646.70	110.73	1,946.72	9,303.88	
11/2021	180.55	2,458.82	262.18	2,349.75	493.36	2,893.38	174.97	1,965.17	9,667.12	
12/2021	285.03	2,540.37	271.9	2,441.74	353.92	3,059.88	86.96	1,970.50	10,012.49	
01/2022	0.00	2,528.88	0	2,430.17	11.17	3,055.24	0	1,959.04	9,973.33	
02/2022	0.00	2,522.27	0	2,425.42	70.32	3,086.21	83.63	2,000.85	10,034.75	
03/2022	53.15	2,491.71	48.13	2,399.76	68.74	3,082.01	158.43	2,067.31	10,040.79	
04/2022	159.64	2,557.12	333.14	2,562.68	399.96	3,281.99	602.46	2,368.52	10,770.31	
05/2022	87.32	2,596.90	141.75	2,628.07	214.21	3,383.68	354.68	2,542.14	11,150.79	
06/2022	274.39	2,717.78	338.9	2,783.56	250.61	3,494.09	286.62	2,674.06	11,669.49	
07/2022	490.31	2,940.72	551.22	3,038.00	510.77	3,724.44	551.66	2,925.68	12,628.84	
08/2022	508.64	3,143.21	687.87	3,337.00	712.94	4,019.69	688.59	3,223.11	13,723.01	
09/2022	679.97	3,417.49	766.38	3,667.25	883.4	4,412.36	849.03	3,600.83	15,097.93	
10/2022	561.36	3,597.77	742.79	3,939.69	875.98	4,784.35	800.04	3,921.79	16,243.60	
11/2022	752.02	3,941.12	1024.46	4,421.22	1013.39	5,242.43	488.62	4,133.96	17,738.73	
12/2022	840.85	4,335.23	1245.91	5,009.86	834.92	5,605.95	952.03	4,597.18	19,548.22	<<

NOx BAE		
Unit	**Baseline Period**	**BAE (lb/yr)**
CTG 1	10/2019 - 9/2021	30,982
CTG 2	10/2019 - 9/2021	29,768
CTG 3	10/2019 - 9/2021	14,568
CTG 4	10/2019 - 9/2021	21,452
Total		96,770

PM10 BAE		
Unit	**Baseline Period**	**BAE (lb/yr)**
CTG 1	10/2019 - 9/2021	7,028
CTG 2	10/2019 - 9/2021	16,022
CTG 3	10/2019 - 9/2021	17,077
CTG 4	10/2019 - 9/2021	10,631
Total		50,758

VOC BAE		
Unit	**Baseline Period**	**BAE (lb/yr)**
CTG 1	1/2021 - 12/2022	4,335
CTG 2	1/2021 - 12/2022	5,010
CTG 3	1/2021 - 12/2022	5,606
CTG 4	1/2021 - 12/2022	4,597
Total		19,548

APPENDIX C
Projected Emissions Documentation

Meefog operations - Summary expected future operations La Paloma

Summary - La Paloma 2023 rev 1 Budget - full price volatility case (A)

	2023	2024	2025	2026	2027
Generation MWH/Unit	354,695	323,135	321,101	314,643	294,993
Number of Starts (per unit)	145	137	140	139	132
Total fuel consumption Mmbtu/Unit	2,782,809	2,543,035	2,531,011	2,483,811	2,331,508
Operating Hours (per start)	10.8	10.4	10.1	9.9	9.8
Operating Hours (per Unit)	1,575	1,424	1,408	1,374	1,286

Meefog installed 12 MW increase in Capacity per unit- 150 btu/KWh Heat rate improvement (Sample Case - Meefog installed on 7/1/2024) - (B)

	2023	2024	2025	2026	2027
Generation MWH/Unit	354,695	352,079	364,910	357,048	337,069
Number of Starts (per unit)	145	142	150	148	142
Total fuel consumption Mmbtu/Unit	2,782,809	2,709,914	2,796,777	2,739,531	2,589,720
Operating Hours (per start)	10.8	10.6	10.2	10.1	9.9
Operating Hours (per Unit)	1,575	1,502	1,533	1,494	1,408

Differences (B-A)

	2023	2024	2025	2026	2027
Generation MWH/Unit	0	28,944	43,808	42,405	42,076
Number of Starts (per unit)	0	5	10	9	10
Total fuel consumption Mmbtu/Unit	0	166,879	265,766	255,720	258,211
Operating Hours (per start)	0.0	0.2	0.2	0.2	0.2
Operating Hours (per Unit)	0	78	125	120	121

Differences (B-A) %

	2023	2024	2025	2026	2027
Generation MWH/Unit	0.0%	9.0%	13.6%	13.5%	14.3%
Number of Starts (per unit)	0.0%	3.3%	6.9%	6.3%	7.5%
Total fuel consumption Mmbtu/Unit	0.0%	6.6%	10.5%	10.3%	11.1%
Operating Hours (per Unit)	0.0%	5.5%	8.9%	8.7%	9.4%

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	2/7/2023 12:25
Duration	1079148:25:07

2023

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	122	26,421	81	26,503	10,919	205,743	0
2	6	57	12,595	39	12,634	5,415	102,028	0
3	7	67	15,328	53	15,381	6,543	123,296	0
4	4	37	8,560	41	8,602	3,730	70,277	6
5	3	28	6,311	44	6,355	2,806	52,868	0
6	8	64	14,846	100	14,945	6,505	122,579	0
7	17	155	34,604	353	34,957	14,797	278,822	0
8	19	184	40,825	373	41,198	17,262	325,266	0
9	19	184	41,172	352	41,524	17,305	326,081	0
10	20	220	49,637	408	50,045	20,646	389,035	0
11	20	289	64,178	466	64,643	26,238	494,410	0
12	13	168	37,765	144	37,908	15,518	292,405	6
Total	**145**	**1,575**	**352,241**	**2,454**	**354,695**	**147,684**	**2,782,809**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	2/7/2023 12:28
Duration	28:18

2024 MEEFOG starts on 7/1/2024

12 MW additional Capacity

150 btu/KWH improved heat rate

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	121	26,388	65	26,452	10,922	205,813	0
2	6	65	14,409	63	14,472	6,156	115,990	0
3	6	59	13,524	49	13,573	5,777	108,858	0
4	4	30	7,019	46	7,065	3,098	58,373	6
5	3	23	5,320	29	5,350	2,387	44,986	0
6	7	57	13,181	106	13,287	5,801	109,303	0
7	18	159	37,344	354	37,698	15,558	293,156	0
8	20	184	43,041	420	43,462	17,787	335,159	0
9	20	193	45,585	365	45,949	18,635	351,134	0
10	20	233	55,378	400	55,778	22,367	421,468	0
11	15	213	49,596	334	49,930	19,775	372,617	7
12	13	165	38,918	144	39,062	15,553	293,058	10
Total	**142**	**1,502**	**349,704**	**2,374**	**352,079**	**143,815**	**2,709,914**	**23**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	4/6/2023 17:04
Duration	04:11

2025

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	10	133	30,577	94	30,671	12,295	231,670	0
2	7	67	15,779	56	15,835	6,579	123,965	0
3	7	66	15,947	37	15,984	6,612	124,592	0
4	4	34	8,103	42	8,145	3,443	64,876	6
5	3	24	5,705	23	5,728	2,473	46,595	0
6	7	57	13,856	90	13,946	5,932	111,778	0
7	18	152	35,818	366	36,184	15,011	282,848	0
8	20	174	41,038	430	41,468	17,042	321,128	0
9	20	181	42,874	354	43,228	17,607	331,777	0
10	20	211	50,374	347	50,720	20,420	384,766	0
11	20	271	63,787	392	64,179	25,459	479,727	0
12	14	163	38,659	162	38,821	15,552	293,055	6
Total	**150**	**1,533**	**362,517**	**2,393**	**364,910**	**148,425**	**2,796,777**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	4/6/2023 17:06
Duration	06:06

2026

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	10	124	28,874	80	28,954	11,677	220,038	0
2	7	67	16,003	56	16,058	6,643	125,170	0
3	7	63	15,292	51	15,343	6,354	119,724	0
4	5	39	9,340	39	9,379	3,955	74,525	6
5	3	26	6,383	30	6,413	2,757	51,957	0
6	7	54	13,006	77	13,083	5,574	105,038	0
7	18	145	34,460	370	34,830	14,482	272,892	0
8	19	160	37,766	377	38,143	15,752	296,824	0
9	19	177	42,123	355	42,478	17,298	325,944	0
10	19	211	50,568	337	50,905	20,463	385,578	0
11	21	272	64,089	429	64,518	25,622	482,791	0
12	13	155	36,792	152	36,944	14,809	279,051	6
Total	**148**	**1,494**	**354,695**	**2,352**	**357,048**	**145,387**	**2,739,531**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	4/6/2023 17:08
Duration	08:00

2027

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	10	118	27,637	85	27,722	11,203	211,098	0
2	6	56	13,371	34	13,405	5,570	104,959	0
3	6	56	13,502	46	13,549	5,638	106,239	0
4	4	33	7,885	29	7,914	3,362	63,350	6
5	3	24	5,771	25	5,796	2,500	47,099	0
6	6	49	11,960	68	12,029	5,132	96,695	0
7	17	134	31,819	320	32,138	13,400	252,491	0
8	19	160	37,945	380	38,325	15,823	298,162	0
9	18	162	38,588	289	38,877	15,867	298,976	0
10	19	213	50,944	337	51,281	20,600	388,176	0
11	20	255	60,263	395	60,658	24,132	454,727	0
12	13	147	35,230	144	35,375	14,209	267,748	6
Total	**142**	**1,408**	**334,916**	**2,153**	**337,069**	**137,436**	**2,589,720**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	11/7/2022 20:49
Duration	1076948:49:55

2023

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	122	26,421	81	26,503	10,919	205,743	0
2	6	57	12,595	39	12,634	5,415	102,028	0
3	7	67	15,328	53	15,381	6,543	123,296	0
4	4	37	8,560	41	8,602	3,730	70,277	6
5	3	28	6,311	44	6,355	2,806	52,868	0
6	8	64	14,846	100	14,945	6,505	122,579	0
7	17	155	34,604	353	34,957	14,797	278,822	0
8	19	184	40,825	373	41,198	17,262	325,266	0
9	19	184	41,172	352	41,524	17,305	326,081	0
10	20	220	49,637	408	50,045	20,646	389,035	0
11	20	289	64,178	466	64,643	26,238	494,410	0
12	13	168	37,765	144	37,908	15,518	292,405	6
Total	**145**	**1,575**	**352,241**	**2,454**	**354,695**	**147,684**	**2,782,809**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	11/7/2022 20:51
Duration	51:33

2024

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	121	26,388	65	26,452	10,922	205,813	0
2	6	65	14,409	63	14,472	6,156	115,990	0
3	6	59	13,524	49	13,573	5,777	108,858	0
4	4	30	7,019	46	7,065	3,098	58,373	6
5	3	23	5,320	29	5,350	2,387	44,986	0
6	7	57	13,181	106	13,287	5,801	109,303	0
7	17	147	33,105	353	33,458	14,221	267,968	0
8	19	172	38,354	420	38,774	16,346	308,012	0
9	19	181	40,809	364	41,173	17,165	323,435	0
10	20	218	49,576	399	49,976	20,609	388,345	0
11	15	198	44,368	334	44,701	18,215	343,227	7
12	12	154	34,710	144	34,854	14,261	268,726	10
Total	**137**	**1,424**	**320,763**	**2,372**	**323,135**	**134,959**	**2,543,035**	**23**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	11/7/2022 20:53
Duration	53:21

2025

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	120	26,622	94	26,716	11,018	207,608	0
2	6	58	13,015	56	13,072	5,598	105,491	0
3	6	56	12,867	37	12,904	5,504	103,711	0
4	3	30	6,838	41	6,880	2,987	56,292	6
5	3	21	4,828	23	4,851	2,150	40,519	0
6	6	50	11,531	89	11,620	5,098	96,059	0
7	17	140	31,634	365	31,999	13,664	257,463	0
8	19	163	36,690	429	37,120	15,702	295,883	0
9	18	169	38,205	354	38,559	16,150	304,317	0
10	19	195	44,639	346	44,986	18,623	350,921	0
11	20	256	57,787	392	58,179	23,727	447,081	0
12	13	150	34,055	162	34,217	14,099	265,665	6
Total	**140**	**1,408**	**318,713**	**2,388**	**321,101**	**134,321**	**2,531,011**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	11/7/2022 20:55
Duration	55:11

2026

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	110	24,628	80	24,707	10,271	193,546	0
2	6	59	13,535	55	13,590	5,795	109,194	0
3	6	56	12,909	51	12,960	5,522	104,042	0
4	4	34	7,906	39	7,945	3,447	64,957	6
5	3	22	5,144	30	5,174	2,288	43,104	0
6	6	49	11,230	77	11,307	4,960	93,457	0
7	17	135	30,493	370	30,863	13,223	249,163	0
8	18	149	33,538	376	33,914	14,422	271,749	0
9	18	165	37,307	355	37,662	15,779	297,321	0
10	19	196	44,932	336	45,268	18,722	352,774	0
11	20	255	57,757	429	58,186	23,762	447,755	0
12	12	145	32,914	152	33,065	13,626	256,747	6
Total	**139**	**1,374**	**312,293**	**2,350**	**314,643**	**131,816**	**2,483,811**	**12**

Number of Iterations	100
Start of cycle	12:00:00 AM
End of Cycle	11/7/2022 20:57
Duration	57:01

2027

Summary Results - Outages Adjustment - Volatility Adjustment on Market Load, Hydro, Wind, Solar Generation, Imports and Resulting Market Prices

Average Results - Monthly

Month	Starts	Hours of Operation	MWH base	MWH Augment	Total MWH	tons CO2	Fuel MMBTu	Scheduled Outage
1	9	105	23,430	85	23,515	9,786	184,400	0
2	5	48	10,874	34	10,907	4,681	88,198	0
3	5	49	11,232	46	11,279	4,826	90,942	0
4	4	28	6,461	28	6,489	2,833	53,386	6
5	3	20	4,698	25	4,723	2,096	39,502	0
6	5	42	9,651	68	9,718	4,280	80,656	0
7	16	124	27,918	318	28,236	12,132	228,601	0
8	18	149	33,661	380	34,041	14,472	272,690	0
9	17	151	34,231	289	34,520	14,506	273,339	0
10	19	198	45,345	337	45,682	18,873	355,620	0
11	20	239	54,177	395	54,572	22,322	420,621	0
12	12	136	31,165	144	31,310	12,925	243,553	6
Total	**132**	**1,286**	**292,844**	**2,149**	**294,993**	**123,733**	**2,331,508**	**12**

APPENDIX D
UBC/PEI Documentation

UBC NOx				
Unit	Max Operation (hr/month)	Actual Operation (hr/month)	BAE NOx (lb/yr)	UBC NOx (lb/yr)
CTG 1	559.07	214.01	30,982.19	49,954.31
CTG 2	534.92	197.99	29,768.28	50,658.22
CTG 3	556.63	189.19	14,567.75	28,293.15
CTG 4	491.53	176.61	21,451.72	38,251.38

UBC PM10				
Unit	Max Operation (hr/month)	Actual Operation (hr/month)	BAE PM10 (lb/yr)	UBC PM10 (lb/yr)
CTG 1	559.07	214.01	7,027.71	11,331.19
CTG 2	534.92	197.99	16,022.43	27,266.17
CTG 3	556.63	189.19	17,077.03	33,166.57
CTG 4	491.53	176.61	10,631.20	18,956.90

UBC VOC				
Unit	Max Operation (hr/month)	Actual Operation (hr/month)	BAE VOC (lb/yr)	UBC VOC (lb/yr)
CTG 1	539.04	157.08	4,335.23	10,541.67
CTG 2	499.88	183.33	5,009.86	8,650.34
CTG 3	556.63	211.70	5,605.95	9,133.95
CTG 4	427.37	173.32	4,597.18	6,738.52

PEI NOx				
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	20,136.80	30,982.19	49,954.31	(60,799.70)
CTG 2	20,136.80	29,768.28	50,658.22	(60,289.70)
CTG 3	20,136.80	14,567.75	28,293.15	(22,724.10)
CTG 4	20,136.80	21,451.72	38,251.38	(39,566.30)
Total				(183,379.81)

PEI PM10				
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	7,551.30	7,027.71	11,331.19	(10,807.60)
CTG 2	7,551.30	16,022.43	27,266.17	(35,737.30)
CTG 3	7,551.30	17,077.03	33,166.57	(42,692.30)
CTG 4	7,551.30	10,631.20	18,956.90	(22,036.80)
Total				(111,274.00)

PEI VOC				
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	2,796.78	4,335.23	10,541.67	(12,080.12)
CTG 2	2,796.78	5,009.86	8,650.34	(10,863.42)
CTG 3	2,796.78	5,605.95	9,133.95	(11,943.12)
CTG 4	2,796.78	4,597.18	6,738.52	(8,538.92)
Total				(43,425.59)

PEI NOx				
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	17,751.73	30,982.19	49,954.31	(63,184.77)
CTG 2	17,751.73	29,768.28	50,658.22	(62,674.77)
CTG 3	17,751.73	14,567.75	28,293.15	(25,109.17)
CTG 4	17,751.73	21,451.72	38,251.38	(41,951.37)
Total				(192,920.08)

PEI PM10				
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	17,751.73	7,027.71	11,331.19	(607.17)
CTG 2	17,751.73	16,022.43	27,266.17	(25,536.87)
CTG 3	17,751.73	17,077.03	33,166.57	(32,491.87)
CTG 4	17,751.73	10,631.20	18,956.90	(11,836.37)
Total				(70,472.28)

PEI VOC				
Unit	PAE (lb/yr)	BAE (lb/yr)	UBC (lb/yr)	PEI (lb/yr)
CTG 1	3,994.15	4,335.23	10,541.67	(10,882.75)
CTG 2	3,994.15	5,009.86	8,650.34	(9,666.05)
CTG 3	3,994.15	5,605.95	9,133.95	(10,745.75)
CTG 4	3,994.15	4,597.18	6,738.52	(7,341.55)
Total				(38,636.10)

Operating Month	Unit 1 (hr/month)	Unit 1 Monthly Avg (hr/month)	Unit 1 Monthly Max (hr/month)	Unit 2 (hr/month)	Unit 2 Monthly Avg (hr/month)	Unit 2 Monthly Max (hr/month)	Unit 3 (hr/month)	Unit 3 Monthly Avg (hr/month)	Unit 3 Monthly Max (hr/yr)	Unit 4 (hr/month)	Unit 4 Monthly Avg (hr/month)	Unit 4 Monthly Max (hr/yr)	Baseline Selection
01/2018	0.00			0			0			0			
02/2018	0.00			3.67			30.04			9.31			
03/2018	0.00			19.63			17.41			0			
04/2018	0.00			27.88			29.28			9.34			
05/2018	0.00			0			0			0			
06/2018	101.09			109.77			113.31			0			
07/2018	315.92			320.31			295.59			32.93			
08/2018	391.34			386.81			373.77			43.87			
09/2018	245.64			208.02			128.57			0			
10/2018	419.32			392.89			45.75			0			
11/2018	391.53			317.52			0			0			
12/2018	370.59			338.22			0			0			
01/2019	0.13			0.1			0			0			
02/2019	0.00			0			0			0			
03/2019	0.00			0			0			0			
04/2019	0.00			0			0			0			
05/2019	0.00			0			0			0			
06/2019	7.21			9.26			5.38			0			
07/2019	200.45			196.37			221.6			42.14			
08/2019	248.25			217.99			90.73			171.92			
09/2019	172.20			196.76			74.01			154.08			
10/2019	232.01			242.55			101.74			275.44			
11/2019	386.70			376.49			0			491.53			
12/2019	371.42	160.58	419.32	272.46	151.53	392.89	87.1	67.26	373.77	270.88	62.56	491.53	
01/2020	70.58	163.52	419.32	70.5	154.47	392.89	58.34	69.69	373.77	58.92	65.02	491.53	
02/2020	41.56	165.25	419.32	29.97	155.56	392.89	21.75	69.35	373.77	0	64.63	491.53	
03/2020	327.63	178.90	419.32	285.88	166.66	392.89	195.45	76.77	373.77	88.49	68.31	491.53	
04/2020	84.43	182.42	419.32	25.79	166.57	392.89	0	75.55	373.77	0.25	67.94	491.53	
05/2020	28.07	183.59	419.32	38.1	168.16	392.89	30.54	76.82	373.77	21.23	68.82	491.53	
06/2020	99.35	183.51	419.32	87.72	167.24	392.89	80	75.43	373.77	62.93	71.44	491.53	
07/2020	139.09	176.15	419.32	153.33	160.28	392.89	194.39	71.21	373.77	173.09	77.28	491.53	
08/2020	357.16	174.72	419.32	335.13	158.13	392.89	447.42	74.28	447.42	377.12	91.17	491.53	
09/2020	413.23	181.70	419.32	322.94	162.92	392.89	312.81	81.96	447.42	302.01	103.75	491.53	
10/2020	559.07	187.53	559.07	534.92	168.83	534.92	353.28	94.77	447.42	406.32	120.68	491.53	
11/2020	221.77	180.45	559.07	218.64	164.71	534.92	349.48	109.33	447.42	232.45	130.37	491.53	
12/2020	178.46	172.45	559.07	255.69	161.27	534.92	376.79	125.03	447.42	97.04	134.41	491.53	
01/2021	0.00	172.44	559.07	95.1	165.23	534.92	99.41	129.18	447.42	102.44	138.68	491.53	
02/2021	0.00	172.44	559.07	0	165.23	534.92	9.17	129.56	447.42	8.63	139.04	491.53	
03/2021	0.00	172.44	559.07	65.94	167.98	534.92	90.21	133.32	447.42	10.85	139.49	491.53	
04/2021	18.95	173.23	559.07	0	167.98	534.92	55.66	135.64	447.42	10.34	139.92	491.53	
05/2021	60.69	175.76	559.07	69.29	170.87	534.92	80.2	138.98	447.42	31.54	141.24	491.53	
06/2021	293.85	187.71	559.07	324.35	184.00	534.92	300.46	151.27	447.42	301.18	153.78	491.53	
07/2021	539.04	201.81	559.07	449.51	194.54	534.92	556.63	165.23	556.63	427.37	169.84	491.53	
08/2021	373.11	207.02	559.07	311.37	198.43	534.92	424.17	179.13	556.63	282.82	174.46	491.53	
09/2021	339.98	214.01	559.07	186.08	197.99	534.92	315.63	189.19	556.63	205.65	176.61	491.53	<< NOx, PM
10/2021	40.95	206.05	559.07	75.15	191.01	534.92	130.13	190.38	556.63	51.75	167.28	491.53	
11/2021	68.63	192.79	559.07	116.19	180.17	534.92	203.95	198.87	556.63	72.27	149.82	427.37	
12/2021	131.85	182.81	559.07	138.09	174.57	534.92	166.69	202.19	556.63	52.52	140.72	427.37	
01/2022	0.00	179.87	559.07	0	171.63	534.92	8.27	200.10	556.63	0	138.26	427.37	
02/2022	0.00	178.14	559.07	0	170.38	534.92	29.25	200.42	556.63	35.85	139.76	427.37	
03/2022	36.04	165.99	559.07	28.61	159.66	534.92	46.7	194.22	556.63	93.24	139.95	427.37	
04/2022	76.08	165.64	559.07	150.69	164.87	534.92	181.97	201.80	556.63	274.64	151.39	427.37	
05/2022	39.22	166.11	559.07	62.95	165.90	534.92	112.51	205.22	556.63	179.27	157.97	427.37	
06/2022	116.31	166.81	559.07	153.8	168.66	534.92	109.04	206.43	556.63	124.36	160.53	427.37	
07/2022	203.72	169.50	559.07	228	171.77	534.92	224.42	207.68	556.63	233.06	163.03	427.37	
08/2022	228.19	164.13	559.07	323.67	171.29	534.92	339.51	203.18	556.63	320.06	160.65	427.37	

APPENDIX E
BACT Guideline

Add these two conditions in front of the PTOs:

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit

2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.4.2*

Last Update: 10/01/2002

Gas Turbine - = or > 50 MW, Uniform Load, with Heat Recovery

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	2.0 ppmv @ 15% O2	1.5 ppmv @ 15% O2	
SOx	1. PUC-regulated natural gas or 2. Non-PUC-regulated gas with no more that 0.75 grams S/100 dscf, or equal.		
PM10	Air inlet filter cooler, lube oil vent coalescer and natural gas fuel, or equal		
NOx	2.5 ppmv dry @ 15% O2 (1-hr average, excluding startup and shutdown), (Selective catalytic reduction, or equal)	2.0 ppmv dry @ 15% O2 (1-hr average, excluding startup and shutdown), (Selective catalytic reduction, or equal)	
CO	6.0 ppmv @ 15% O2 (Oxidation catalyst, or equal)	4.0 ppmv @ 15% O2 (Oxidation catalyst, or equal)	

** Applicability lowered to > 50 MW pursuant to CARB Guidance for Permitting Electrical Generation Technologies. Change effective 10/1/02. Corrected error in applicability to read 50 MW not 50 MMBtu/hr effective 4/1/03.

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

***This is a Summary Page for this Class of Source**

APPENDIX F
BACT Analysis

Top-Down BACT Analysis

From the above analysis, only NOx, PM10, and VOC emissions trigger BACT.

SJVAPCD BACT Guideline 3.4.2 for "Gas Turbine ≥ 50 MW, Uniform Load, with Heat Recovery" (10/01/2002) was considered in this analysis. However, due to the age of the guideline, a new top-down BACT analysis was performed in accordance with the District BACT policy for NOx.

1. BACT Analysis for NOX Emissions:

a. Step 1 - Identify all control technologies

1. Selective Catalytic Reduction (SCR)

The most common control technology for NOx for combined cycle gas turbines is the use of a Selective Catalytic Reduction (SCR) system. SCR is a post-combustion NOx control method that uses ammonia (in the present case) and a catalyst to reduce NOx in the exhaust to nitrogen gas (N2). The facility's current SCR system achieves a NOx emissions concentration of 2.5 ppmv dry @ 15% O2.

2. Dry Low NOx Turbine Combustor

Dry Low NOx combustor reduces the formation of NOx by staging the fuel combustion, which, in turn, lowers the combustion temperature and the formation of thermal NOx. Thermal NOx formation is primarily a function of flame temperature and residence time. The extent of fuel/air mixing prior to combustion also affects NOx formation. Simultaneous mixing and combustion results in localized fuel-rich zones that yield high flame temperatures in which substantial thermal NOx production takes place. Hence, staged combustion reduces the amount of thermal energy released by combustion at any one time, thereby lowering the peak combustion temperature and thermal NOx. The turbines at the facility already control NOx emissions using Dry Low NOx combustors.

b. Step 2 - Eliminate technologically infeasible options

All control options listed in Step 1 are technologically feasible and are already implemented to control NOx. However, some other research showed different achievable emissions rate of NOx.

Other air district permits, BACT Determinations, and BACT Guidelines were reviewed to analyze how these control technologies have been implemented and the effectiveness of their NOx control. See Table F.2 for the query of permits and other resources consulted. It was noted that several permits achieved NOx emissions at 2.0 ppmv dry @ 15% O2 (except during periods of startup and shutdown) with the use of SCR and Dry Low NOx combustion. Some District BACT

Determinations show that these NOx emissions are even achieved in practice with the use of these control technologies.

For a control technology to be deemed as having been achieved in practice, the following conditions must be met:

- The rating and capacity for the unit where the control was achieved must be approximately the same as that for the proposed unit.
- The type of business (i.e. class of source) where the emissions units are utilized must be the same.
- The availability of resources (i.e. fuel, water) necessary for the control technology must be approximately the same.

Based on the information available, the identified equipment associated with the achieved in practice determinations are not of the same class and category as the LaPaloma turbines. They do not represent the same model of the LaPaloma turbines, which are older, operating as designed and not necessarily supported by the manufacturer.

Considering the age of the units at La Paloma and the type of modification being proposed in this application, NOx emissions at 2.0 ppmv dry @ 15% O2 cannot be considered achieved in practice in this case. Thus, control strategies with the identified control technologies to achieve NOx emissions at 2.0 ppmv dry @ 15% O2 will be evaluated as technological feasible options below.

c. Step 3 - Rank remaining options by control effectiveness

The facility's current SCR system achieves a NOx emissions concentration of 2.5 ppmv dry @ 15% O2. Two control technology strategies were identified to possibly be able to achieve NOx emissions at 2.0 ppmv dry @ 15% O2. Those were ranked in terms of emissions and complexity below. All control options were evaluated as if they were technically feasible. See Table F.1 for the list of options.

1. Upgraded Lower NOx Turbine Combustors with Existing SCR System. (2.0 ppmv dry @ 15% O2)

2. Upgraded SCR System (Additional Catalyst) with Existing Turbine Combustors (2.0 ppmv dry @ 15% O2)

3. NOx emissions at 2.5 ppmv dry @ 15% O2 using Current SCR and Low NOx Combustors

d. Step 4 - Cost Effectiveness Analysis

All remaining control alternatives were evaluated according to the cost methodology provided in the Environmental Protection Agency (EPA) Air Pollution Control Cost Manual (Sixth Edition). The resulting cost effectiveness values in

dollars per ton of NOx removed were compared to the SJVAPCD's current cost effectiveness thresholds for NOx of $32,900 per ton to determine if the control technologies are cost effective. Results of this evaluation are presented in Table F.3. and summarized below.

1. Upgraded Lower NOx Turbine Combustors with Existing SCR System.

   Based on the age of the equipment and the options to control NOx from the current turbines into the SCR, it was determine the only option would be to replace the current Low NOx combustors with those achieving even lower NOx. Therefore, the facility has based this cost effectiveness on a conservative cost estimate for the Staged LoLa EV Lance & Burner Upgrade - Hardware only, installation services not included (estimated from vendor). The current turbines and combustors achieve NOx emissions of <25 ppm. Based on manufacturer information, this upgrade would achieve turbine emissions of <10 ppm NOx. Assuming the current SCR is just as effective and can control NOX emissions down to a 2.0 ppmv dry @ 15% O2 level, the following cost effectiveness was calculated. See Attached Table F.3 for details of the annualized cost of constructing and maintaining the new combustors.

   Total Annual Cost: $651,660

   Annual NOx reduction: 11.49 tons

   Cost Effectiveness: $56,726 / ton of NOx removed

2. Upgraded SCR System (Additional Catalyst) with Existing Turbine Combustors

   The facility has estimated the cost effectiveness of installing a newer, larger SCR system with more catalyst capable of achieving NOX emissions at 2.0 ppmv dry @ 15% O2 using the EPA's Retrofit Cost Tool (4/19/2023). See Attached Table F.3 for details of the annualized cost of constructing and maintaining the new SCR system.

   Total Annual Cost: $4,771,264

   Annual NOx reduction: 11.49 tons

   Cost Effectiveness: $415,334 / ton of NOx removed

As seen above, the control technologies identified to reduce NOx to 2.0 ppmv dry @ 15% O2 exceed SJVAPCD's current cost effectiveness thresholds for NOx of $32,900 / ton. Therefore, this control technology is not required and the next feasible control option of will be evaluated for cost effectiveness.

The applicant has proposed the control option of achieving 2.5 ppmv NOx dry @ 15% O2 (1-hr average, excluding startup and shutdown). Therefore, a cost effectiveness analysis is not required.

The facility discussed potentially adding more catalyst to the current SCR system, but it was determined that this was infeasible with the current SCR unit, as it was designed for a certain amount of catalyst capacity Operators report that any more would cause backpressure to the turbines and reduce power output.

e. Step 5 - Select BACT

BACT for NOx is the following, which is the most stringent requirement that is cost effective. Therefore, BACT will be satisfied.

NOx: 2.5 ppmv dry @ 15% O2 (1-hr average, excluding startup and shutdown), (Selective catalytic reduction, or equal)

2. BACT Analysis for PM10 Emissions:

a. Step 1 - Identify all control technologies

For PM10 Emissions BACT Guideline 3.4.2 identifies the following option:

Achieved in Practice:

Air inlet filter cooler, lube oil vent coalescer and natural gas fuel,
or equal

Technologically Feasible:

No listing

b. Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is technologically infeasible.

c. Step 3 - Rank remaining options by control effectiveness

The applicant is proposing to use the following controls, which are also the highest ranked options in step 1.

Air inlet filter cooler, lube oil vent coalescer and natural gas fuel, or equal

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the strictest control options under consideration. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for PM10 are the following controls, which are also proposed by the applicant. Therefore, BACT will be satisfied.

Air inlet filter cooler, lube oil vent coalescer and natural gas fuel, or equal

3. BACT Analysis for VOC Emissions:

a. Step 1 - Identify all control technologies

For VOC Emissions BACT Guideline 3.4.2 identifies the following options:

Achieved in Practice:

2.0 ppmv @ 15% O2

Technologically Feasible:

1.5 ppmv @ 15% O2

b. Step 2 - Eliminate technologically infeasible options

The control options listed in Step 1 are technologically infeasible.

c. Step 3 - Rank remaining options by control effectiveness

The ranking is as follows:

1.5 ppmv @ 15% O2

2.0 ppmv @ 15% O2

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed to meet a stricter control option of meeting a VOC emissions limit of 0.7 ppmvd @ 15% O2. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for VOC is the following, which is proposed by the applicant. Therefore, BACT will be satisfied.

VOC: 0.7 ppmvd @ 15% O2

Table F.1 BACT Control Options for NOx Reduction from La Paloma 262 MW Combustion Turbine Generator

Control Technology	Control Efficiency (%)	Existing Emissions Rate (lb/MMBtu)	New Emission Rate (lb/MMBtu)	Emission Reduction (tons/yr)***	Environmental Impacts	Energy Impacts
Low NOx Turbine Combustor Retrofit (with exisiting SCR system)	60%*	0.0091	0.0073	11.49	Construction	Electricity & Natural Gas
Selective Catalytic Reduction System Expansion	20%**	0.0091	0.0073	11.49	Construction	Electricity & Natural Gas
Maintaining NOx emissions at 2.5 ppmv dry @ 15% O2 using current SCR and Low NOx Combustor setup	N/A	0.0091	0.0091	None	N/A	N/A

* Turbine Emissions from <25ppm NOx to <10ppm NOx

** Assumed to achieve final NOx emissions from 2.5 ppm to 2.0 ppm @ 15% O2

*** Assuming average heat rating of turbines is 1457 MMBtu/hr, operate at 8,760 hours/year

Table F.2 Results of Query for Combustion Turbine Generator Nox BACT and Permitted Emissions Limit

ID	Facility	Date	Process	Description	NOx Emission Limit	Achieved in Practice / Technologically Feasible	Notes
San Joaquin Valley APCD BACT Guidline 3.4.2	N/A	10/1/2002	Gas Turbine (> 50 Megawatts) Uniform Load, with Heat Recovery	Link:guide (ca.gov)	2.5 ppm, Dry @ 15% O2 (1hr average, excluding start/shut)	Achieved in Practice	
					2.0 ppm, Dry @ 15% O2 (1hr average, excluding start/shut)	Technologically Feasible	
Bay Area AQMD BACT Guideline 89.1.6	N/A	7/18/2003	Combined Cycle (> 40 Megawatts) Gas Turbine	Link: BACTID366.pdf (ca.gov)	2.5 ppm, Dry @ 15% O2	Achieved in Practice	
					2.0 ppm, Dry @ 15% O2	Technologically Feasible	
Sacramento Metropolitan AQMD BACT Determination	Determiantion 203 (Permit No. 25800)	10/30/2018	Gas Turbine, 2200 mmBTU/hr (Major Source) With SCR	https://www.airquality.org/StationarySources/Documents/Gas%20Turbine%20BACT%20203.pdf	2.0 ppm, Dry @ 15% O2 (1hr average)	Achieved in Practice	BACT Determination is not considered "active" in the District
South Coast AQMD	Application No. 579955	3/8/2018	Combined Cycle 56.1MW Gas Turbine with SCR, Oxidation catalyst, water injection and Steam Turbine	Link: BACT Form (aqmd.gov)	2.0 ppm @ 15% O2 (1hr average, excluding start/shut)	Achieved in Practice (new technology)	BACT Determination made for new construction of a CGT in 2016, emissions proven with source test prior
San Joaquin Valley APCD Permit No. N-2697-5-7	NORTHERN CALIFORNIA POWER	Exp: 05/31/2024	294 MW (NOMINAL) COMBINED-CYCLE NATURAL GAS-FIRED TURBINE ENGINE WITH ADVANCED ULTRA LOW-NOX COMBUSTOR SYSTEM, AN UNFIRED HEAT RECOVERY STEAM GENERATOR SERVED BY A SELECTIVE CATALYTIC REDUCTION WITH AMMONIA INJECTION AND AN OXIDIZATION CATALYST AND A STEAM TURBINE GENERATOR		2.0 ppm @ 15% O2		
San Joaquin Valley APCD Permit No. S-3523-1-13 and S-3523-2-13	ELK HILLS POWER LLC	Exp: 02/28/2026	GE FRAME 7 MODEL PG7241FA NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH DRY LOW NOX COMBUSTORS, 250.5 MMBTU/HR NATURAL GAS FIRED DUCT BURNER, HEAT RECOVERY STEAM GENERATOR, SELECTIVE CATALYTIC REDUCTION, OXIDATION CATALYST, AND STEAM TURBINE SHARED WITH S-3523-2 (503 MW TOTAL PLANT NOMINAL RATING)		2.5 ppm @ 15% O2		
San Joaquin Valley APCD Permit No. S-3636-1-8	PASTORIA ENERGY FACILITY LLC	Exp: 02/28/2021	168 MW NOMINALLY RATED GENERAL ELECTRIC 7FA NATURAL GAS FIRED GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH DRY LOW NOX COMBUSTORS AND SELECTIVE CATALYTIC REDUCTION, WITH HRSG #1 AND 185 MW STEAM TURBINE #1 IN A TWO ON ONE COMBINED CYCLE WITH GAS TURBINE ENGINE S-3636-2		2.5 ppm @ 15% O2		
San Joaquin Valley APCD Permit No. S-3746-1-12	SUNRISE POWER CO	Exp: 06/30/2023	160 MW NOMINALLY RATED COMBINED-CYCLE POWER GENERATING SYSTEM #1 CONSISTING OF GENERAL ELECTRIC FRAME 7FA, NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH DRY LOW-NOX COMBUSTORS, HEAT RECOVERY STEAM GENERATOR WITH DUCT FIRING, SCR, AND OXIDATION CATALYSTS (585 MW TOTAL PLANT NOMINAL RATING)		2.0 ppm @ 15% O2		
San Joaquin Valley APCD Permit No. S-3746-1-13	SUNRISE POWER CO	Iss: 11/21/2022	MODIFICATION OF 160 MW NOMINALLY RATED COMBINED-CYCLE POWER GENERATING SYSTEM #1 CONSISTING OF GENERAL ELECTRIC FRAME 7FA, NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH DRY LOW-NOX (DLN) COMBUSTORS, HEAT RECOVERY STEAM GENERATOR WITH DUCT FIRING, SCR, AND OXIDATION CATALYSTS (585 MW TOTAL PLANT NOMINAL RATING): INCREASE NOMINAL RATING TO 190 MW BY RETROFIT WITH IMPROVED DLN COMBUSTORS AND UPGRADE MARK VIE TURBINE CONTROL SYSTEM SO THAT THE NEW TOTAL PLANT NOMINAL RATING WILL BE 635 MW		2.0 ppm @ 15% O2		

Table F.3 Cost Effectiveness Evaluation for Controlling NOx Emissions from La Paloma 262 MW Combustion Turbine Generator

Cost Item	Cost Factor	Control Technology	
		Lower NOx Combustors [1]	Selective Catalytic Reduction [2]
Purchased Equipment Costs [4]			
Emission Control Device (EC)	Estimate [3]	$2,000,000	$16,730,000
Instrumentation	10% of EC	$200,000	$1,673,000
Sales Tax	8% of EC	$160,000	$1,338,400
Freight	5% of EC	$100,000	$836,500
Total Purchased Equipment Costs (PEC)		***$2,460,000***	***$20,577,900***
Direct Installation Costs [4]			
Foundations & Supports	8% of PEC	$196,800	$1,646,232
Handling & Erection	14% of PEC	$344,400	$2,880,906
Electrical	4% of PEC	$196,800	$823,116
Piping	2% of PEC	$49,200	$411,558
Insulation	1% of PEC	$246,000	$205,779
Painting	1% of PEC	$24,600	$205,779
Total Direct Installation Costs		***$1,057,800***	***$6,173,370***
Site Preparation	As Required		
Buildings	As Required		
Total Direct Capital Costs (DC)		***$3,517,800***	***$26,751,270***
Indirect Installation Costs[4]			
Engineering	10% of PEC	$246,000	$2,057,790
Construction & Field Expenses	5% of PEC	$123,000	$1,028,895
Contractor Fees	10% of PEC	$246,000	$2,057,790
Start-up	2% of PEC	$49,200	$411,558
Performance Test	1% of PEC	$24,600	$205,779
Total Indirect Installation Costs (IC)		***$688,800***	***$5,761,812***
Contractor Fees	10% of (DC+IC)	$0	$0
Contingency Costs	CF * (DC+IC)	$420,660	$3,251,308
Total Capital Investment (TCI)		***$4,627,260***	***$35,764,390***

Cost Item	Cost Factor	Control Technology	
		Lower NOx Combustors [1]	Selective Catalytic Reduction [2]
Direct Annual Costs			
Operating Labor			
Operator (OL) [4]	0.5hr/shift	$5,359	$5,359
Supervisor	0.15*OL	$6,162	$6,162
Operating Materials			
Water	$/gal * Total gals	$0	$0
Wastewater Disposal	$/gal * Total gals	$0	$0
Maintenance Costs			
Maintenance Labor (ML) [4]	0.5hr/shift	$5,894	$5,894
Maintenance Material (MM)	100% of ML	$5,894	$5,894
Utilities			
Electricity	$/kwh * Total kwh	$2,795	$2,150
Natural Gas	$/kft^3 * Total kft^3	$0	$2,396
Catalyst Replacement			
Material	CRFc * (1.13 * ($/lb) * lb)	$0	$7,892
Labor	CRFc * ($/hr) * lb / (lb/hr)	$0	$3,474
Total Direct Annual Costs		***$26,104***	***$35,747***
Indirect Annual Costs [4]			
Overhead	60% of (OL+ML+MM)	$6,752	$6,752
Adminstrative Charges	2% of TCI	$92,545	$715,288
Property Tax	1% of TCI	$46,273	$357,644
Insurance	1% of TCI	$46,273	$357,644
Capital Recovery [5]	CRFe * TCI	$433,713	$3,298,189
Total Indirect Annual Costs		***$625,555***	***$4,735,517***
Total Annual Costs		***$651,660***	***$4,771,264***
Cost Effectiveness			
Annual NOx Reduction (tons)		11.49	11.49
Cost Effectiveness ($/ton NOx Removed)		***$56,726***	***$415,334***
Cost Effectiveness Threshold ($/ton NOx Removed) [6]		***$32,900***	
Cost Effective (Yes/No)		***No***	***No***

Cost Item	Cost Factor	Control Technology	
		Lower NOx Combustors [1]	Selective Catalytic Reduction [2]

1 Lower NOx Combustor costs were estimated based on a conservative cost estimate for Staged LoLa EV Lance & Burner Upgrade - Hardware only, installation services not included (2022 General Electric presentation).

[2] New SCR system cost estimated based on Retroft Cost Tool from the EPA (Retrofit Cost Tool and Documentation, 4/19/23)

[3] Equipment costs are estimated from the sources above

[4] Cost factors according to EPA Air Pollution Control Cost Manual Sixth Edition. Labor cost were caluclated assuming 2 shifts per day at a worker pay rate of $27.48/hr

[5] In capital recovery calculations, assumed inflation rate of 4% and equipment life of 10 years, SJVAPCD BACT Policy Current BACT Cost Effectiveness Thresholds and Interest Rate for District Policy APR 1305 (BACT)

[6] SJVAPCD 2021 BACT maximum cost effectiveness value for Nox, Current BACT Cost Effectiveness Thresholds and Interest Rate for District Policy APR 1305 (BACT)

APPENDIX G
HRA Summary

Place Holder

APPENDIX H
Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows (example provided for NOx:

NOx $PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year
= 146,000 lb/year ÷ 4 qtr/year
= 36,500 lb PM_{10}/qtr

NOx $PE1_{quarterly}$ = $PE1_{annual}$ ÷ 4 quarters/year
= 146,000 lb/year ÷ 4 qtr/year
= 36,500 lb PM_{10}/qtr

Quarterly NEC [QNEC] (Same for each CTG)			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	36,500	36,500	0
SO_X	763	763	0
PM_{10}	24,090	24,090	0
CO	54,480	54,480	0
VOC	6,262	6,265	0

APPENDIX I
Emission Profiles

Place Holder

APPENDIX J
Compliance Certification

San Joaquin Valley Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

☐ ADMINISTRATIVE AMENDMENT ☑ MINOR MODIFICATION ☐ SIGNIFICANT MODIFICATION

COMPANY NAME: La Paloma Generating Plant (LPGP)	FACILITY ID: S-3412
1. Type of Organization: ☑ Corporation ☐ Sole Ownership ☐ Government ☐ Partnership ☐ Utility	
2. Owner's Name: CXA La Paloma	
3. Agent to the Owner:	

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

FJS Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

FJS Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

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

FJS Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true, accurate, and complete.

FJS For minor modifications, this application meets the criteria for use of minor permit modification procedures pursuant to District Rule 2520.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

Signature of Responsible Official

MAY 11, 2023
Date

Frank Schneider
Name of Responsible Official (please print)

Vice President, Compliance
Title of Responsible Official (please print)

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

INSTRUCTIONS (TVFORM-009)

Complete a Title V Modification - Compliance Certification Form (TVFORM-009) for each Responsible Official (RO) and identify the areas of responsibility for each (indicate by permit number the emissions units under the responsibility of each RO).

I. Type of Permit Action

Mark the appropriate box to indicate whether the application is for: a significant or minor Title V permit modification, or an application for an administrative amendment to a Title V permit.

Line 1. Indicate the organizational structure of the facility.
Line 2. Print the name of the facility owner.
Line 3. Print the name of the agent to the owner, if any, who may conduct business on behalf of the owner.

II. Compliance Certification

A compliance certification is a certification by the Responsible Official that each of the statements initialed in this section are true, accurate, and complete. The Responsible Official must initial the statements that are true, sign and date, and print his/her name and title.

For a corporation, the responsible official shall be a president, secretary, treasurer, or vice president in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation. The responsible official may be a duly authorized representative rather than any of the above if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit; and

1. the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million in 1980 dollars; or

2. the District has approved a petition from the original responsible person to delegate authority.

For a public agency, the responsible official shall be either the principal executive officer or the ranking elected official. The principal executive officer, in the case of a federal agency, may be the executive officer having responsibility for a geographical unit.

. **For a partnership or sole proprietorship**, the responsible official is a general partner or the proprietor, respectively.

APPENDIX B. HISTORICAL ATC PERMITS

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3412-1-18 **ISSUANCE DATE:** 01/24/2013

LEGAL OWNER OR OPERATOR: LA PALOMA GENERATING CO LLC
MAILING ADDRESS: PO BOX 175
MCKITTRICK, CA 93251

LOCATION: 1760 W SKYLINE ROAD
MCKITTRICK, CA 93251

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #1 WITH DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING):INSTALL AIR INLET FOGGER

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. 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. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services

S-3412-1-18 : Jan 24 2013 4:22PM – EDGEHILR : Joint Inspection NOT Required

5. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

6. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit

8. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit

10. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit

14. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit

16. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

19. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

20. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

22. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

23. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

24. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

25. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

26. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

27. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

29. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

30. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

31. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Title V Annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

32. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

33. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

34. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

35. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

36. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

37. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

38. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

39. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

40. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

41. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

42. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

43. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

44. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

45. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

46. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

47. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

48. 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

49. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

50. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

51. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

52. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

53. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

54. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

55. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

56. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

57. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

62. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

63. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

64. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

65. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

66. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

69. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

70. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

71. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

75. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

76. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

77. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

78. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

79. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

80. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

81. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

82. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

83. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

84. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

85. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

86. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3412-2-19 **ISSUANCE DATE:** 01/24/2013

LEGAL OWNER OR OPERATOR: LA PALOMA GENERATING CO LLC
MAILING ADDRESS: PO BOX 175
MCKITTRICK, CA 93251

LOCATION: 1760 W SKYLINE ROAD
MCKITTRICK, CA 93251

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #2 WITH DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING): INSTALL AIR INLET FOGGER

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. 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. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
S-3412-2-19 : Jan 24 2013 4:22PM – EDGEHILR : Joint Inspection NOT Required

5. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

6. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit

8. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit

10. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit

14. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit

16. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

19. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

20. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

22. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

23. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

24. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

25. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

26. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

27. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

29. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

30. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

31. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Tittle V annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

32. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

33. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

34. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

35. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

36. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

37. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

38. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

39. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

40. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

41. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

42. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

43. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

44. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

45. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

46. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

47. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

48. 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

49. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

50. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

51. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

52. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

53. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

54. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

55. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

56. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

57. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

62. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

63. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

64. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

65. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

66. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

69. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

70. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

71. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

75. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

76. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

77. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

78. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

79. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

80. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

81. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

82. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

83. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

84. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

85. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

86. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3412-3-19 **ISSUANCE DATE:** 01/24/2013

LEGAL OWNER OR OPERATOR: LA PALOMA GENERATING CO LLC
MAILING ADDRESS: PO BOX 175
MCKITTRICK, CA 93251

LOCATION: 1760 W SKYLINE ROAD
MCKITTRICK, CA 93251

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #3 WITH DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING): INSTALL INLET FOGGER

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. 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. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
S-3412-3-19 : Jan 24 2013 4:22PM – EDGEHILR : Joint Inspection NOT Required

5. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
6. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit
10. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit
16. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit
17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

19. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

20. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

22. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

23. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

24. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

25. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

26. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

27. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

29. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

30. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

31. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Tittle V annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

32. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

33. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

34. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

35. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

36. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

37. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

38. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

39. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

40. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

41. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

42. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

43. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

44. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

45. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

46. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

47. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

48. 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

49. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

50. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

51. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

52. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

53. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

54. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

55. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

56. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

57. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

62. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

63. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

64. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

65. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

66. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

69. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

70. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

71. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

75. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

76. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

77. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

78. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

79. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

80. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

81. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

82. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

83. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

84. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

85. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

86. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3412-4-14 **ISSUANCE DATE:** 01/24/2013

LEGAL OWNER OR OPERATOR: LA PALOMA GENERATING CO LLC
MAILING ADDRESS: PO BOX 175
MCKITTRICK, CA 93251

LOCATION: 1760 W SKYLINE ROAD
MCKITTRICK, CA 93251

SECTION: NE27 **TOWNSHIP:** 30S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
MODIFICATION OF ABB GT-24 NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR #4 WITH DRY LOW NOX COMBUSTORS, STEAM POWER AUGMENTATION, OXIDATION CATALYST, SELECTIVE CATALYTIC REDUCTION, STEAM TURBINE, AND ELECTRICAL GENERATOR (262 MW NOMINAL RATING): INSTALL AIR INLET FOGGER

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. 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. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The gas turbine engine shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201] Federally Enforceable Through Title V Permit

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

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
S-3412-4-14 : Jan 24 2013 4:22PM -- EDGEHILR : Joint Inspection NOT Required

5. Gas turbine engine exhaust shall be equipped with a continuously recording emissions monitor for NOx, CO and O2 downstream of the SCR catalyst dedicated to this unit. This continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201, 4703, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

6. Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NOx and CO emission limits. [District Rule 2201] Federally Enforceable Through Title V Permit

8. Permittee shall monitor and record exhaust gas temperature at selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Except during startup ignition, gas turbine engine shall be fired exclusively on pipeline quality natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. Gas turbine igniters may be fueled with propane or natural gas as part of startup sequence. Use of propane during startup process is limited to 6 grams per second, for a duration of no more than 30 seconds per startup on a design basis. Ignition occurs for the duration of time required to ignite and achieve a sustained flame on natural gas. [District Rule 2201, District Rule 4801, Kern County Rule 407, and PSD permit (SJ 98-01), X.C.1] Federally Enforceable Through Title V Permit

10. Recommissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and LPGC contractors to insure safe and reliable steady state operation of the plant. [District Rule 2201] Federally Enforceable Through Title V Permit

11. Recommissioning periods for this unit shall commence at first firing during major outage maintenance procedures. The recommissioning period shall terminate when the unit has completed performance testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Permittee shall notify the District at least seven (7) calendar days prior to start, and no more than 7 calendar days after the end, of recommissioning period for this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Startup is defined as the period beginning with turbine light-off, or when the combustion turbine output is reduced to below minimum load (minimum megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the lb/hr and ppmv emission limits in Condition 21) to engage the steam turbine, until the unit again reaches minimum load. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending either with cessation of firing of the gas turbine engine, or when the unit ramps back up after an aborted shutdown and the unit reaches minimum load. Startup durations shall not exceed three hours, except during recommissioning periods for this unit, and shutdowns shall not exceed one hour, per occurrence. [District Rule 2201] Federally Enforceable Through Title V Permit

14. Permittee may inject ammonia during startup when the selective catalytic reduction system is at least 302 degrees F, however ammonia must be injected during startup when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F and selective catalytic reduction system inlet concentrations exceed 2.5 ppmv NOx and as needed during normal operation to meet the NOx emissions limits. Permittee shall monitor and record catalyst temperature during periods of startup. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081] Federally Enforceable Through Title V Permit

16. During startup and/or recommissioning of any gas turbine engines, combined emissions from the four gas turbine engines (S-3412-1, '-2, '-3 and '-4) heat recovery steam generator exhausts shall not exceed the following: NOx (as NO2): 900 lb and CO:2,500 lb in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

17. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

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18. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the oxidation catalyst shall be utilized to minimize CO emissions from this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

19. During recommissioning periods, at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system shall be utilized to control NOx whenever gas turbine operations are sufficiently stable and minimum catalyst temperature is achieved. [District Rule 2201] Federally Enforceable Through Title V Permit

20. During recommissioning periods for this unit, emission rates from gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 517.3 lb/hr and CO: 439.6 lb/hr. NOx (as NO2) emission limit is a one hour average. CO emission limit is a three-hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Emission rates from the gas turbine engine heat recovery steam generator exhaust, except during startup and/or shutdown of this unit, shall not exceed the following: PM10: 11.0 lb/hr, SOx (as SO2): 3.89 lb/hr, NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15% O2, VOC (as propane): 2.80 lb/hr and 0.7 ppmvd @ 15% O2, and CO: 31.40 lb/hr and either 10 ppmvd @ 15% O2 at operating loads less than or equal to 221 MW (gross three hour average) or 6 ppmvd @ 15% O2 at operating loads greater than 221 MW (gross three hour average). NOx (as NO2) emission limit is a one hour average. All other emission limits are three hour rolling averages. NOx and CO emission limits shall not apply during recommissioning periods. [District Rule 2201; District Rule 4703, 5.1 and 5.2; and 40 CFR 60.332 and 60.333] Federally Enforceable Through Title V Permit

22. Except during recommissioning periods for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following on days when a startup or shutdown of the unit occurs: PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, NOx (as NO2): 511.4 lb/day, VOC: 139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

23. During recommissioning periods, for this unit, emission rates from the gas turbine engine heat recovery steam generator exhaust shall not exceed the following: NOx (as NO2): 4,790.0 lb/day, PM10: 264.0 lb/day, SOx (as SO2): 91.4 lb/day, VOC:139.8 lb/day, and CO: 1,873.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

24. Twelve month rolling average emissions from each gas turbine engine heat recovery steam generator exhaust shall not exceed the following PM10: 96,360 lb/year, SOx (as SO2): 30,517 lb/year, NOx (as NO2): 146,001 lb/year, VOC: 25,063 lb/year, and CO: 217,921 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

25. Ammonia emission rate shall not exceed 10 ppmvd @ 15% O2 on a twenty four hour rolling average. [District Rule 4102]

26. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bxc/1,000,000)) x 1,0 00,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NOx concentration ppmv at 15% O2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

27. Short term emissions shall be measured to demonstrate compliance with short term emission limits (lb/hr and ppmv @ 15% O2) annually by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm at full load conditions as follows - NOx: ppmvd @ 15% O2 and lb/hr, CO: ppmvd @ 15% O2 and lb/hr, VOC: ppmvd @ 15% O2 and lb/hr, PM10: lb/hr, and ammonia: ppmvd @ 15% O2. Sample collection for ammonia emissions shall be based on a two-hour or longer average. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Cold start NOx, and CO mass emissions shall be measured, and measurement of cold start VOC emissions shall be performed for one of the gas turbines engines (S-3412-1, '2, '3, or '4) at least every seven years by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081] Federally Enforceable Through Title V Permit

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29. 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. [District Rules 1081; 2520, 9.3.2; and 2540] Federally Enforceable Through Title V Permit

30. The sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 3246. [District Rule 2520, 9.3.2 and 40 CFR 60.335(b)] Federally Enforceable Through Title V Permit

31. Permittee shall maintain records of fuel sulfur content monitoring data and records documenting a constant supplier or source of fuel (a substantial change in fuel quality shall be considered a change in fuel supply). Permittee shall submit results of fuel sulfur content monitoring annually to the District with the Tittle V annual Certificate. Permittee shall notify the District of any changes in fuel supplier or source within 60 days of such change. [District Rules 1081 and 2540] Federally Enforceable Through Title V Permit

32. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081] Federally Enforceable Through Title V Permit

33. The following test methods shall be used NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, and PM10: EPA method 5 (front half and back half) or EPA methods 201A and 202. Alternative test methods as approved by the District and EPA may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 6.4; and 40 CFR 60.335] Federally Enforceable Through Title V Permit

34. Source testing for ammonia shall be performed using BAAQMD ST-1B. [District Rule 4102]

35. The permittee shall maintain hourly records of ammonia emission concentrations (ppmv @ 15% O2) [District Rule 4102]

36. The permittee shall maintain hourly records of NOx, and CO emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by annual VOC source tests. [District Rule 2201] Federally Enforceable Through Title V Permit

37. The permittee shall maintain records of SOx lb/hr, lb/day, and lb/twelve month rolling average emission. SOx emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

38. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

39. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit

40. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

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41. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

42. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. Successive quarterly audits shall occur no closer than two months. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, 6.2] Federally Enforceable Through Title V Permit

43. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

44. Sulfur compound emissions shall not exceed 0.015% by volume at calculated at 15% O2 (150 ppmv @ 15% O2) on a dry basis averaged over 15 consecutive minutes. [District Rule 4801, Kern County Rule 407, and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit

45. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

46. Continuous emission monitors shall meet applicable requirements of 40 CFR 60.13. [District Rule 4703, 5.1 & 6.4 and 40 CFR 60.13] Federally Enforceable Through Title V Permit

47. By two hours after turbine light-off the owner or operator shall not operate the gas turbine under load conditions, excluding shutdown or recommissioning periods for this unit, which results in the measured concentrations exceeding the following limits: 5 ppmv NOx (as NO2) @ 15% O2 or 200 ppmv CO @ 15% O2. [District Rule 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

48. 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

49. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown, recommissioning period, malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), emission measurements, total daily and annual hours of operation, hourly quantity of fuel used, and gross three hour average operating load. [District Rules 1080, 7.0; 2520, 9.3.2; 4703, 6.2; and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit

50. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

51. Air Pollution Control Equipment/Operation: The Permittee shall continuously operate and maintain the following air pollution controls and operations to minimize emissions at or below the levels specified in Conditions X-E of the PSD permit. The aforementioned "continuous" periods of operation do not include periods of startup, shutdown, and recommissioning, as defined in Section X.E.3, and X.F.1 of the PSD permit, or periods of malfunction as defined in Section IV.B.1 of the PSD permit. The Permittee shall continuously operate Selective Catalytic Reduction (SCR) systems on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 to meet the NOx emission limits specified in the PSD permit. The Permittee shall maintain an oxidation catalyst system on permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4 for control of CO. [PSD permit (SJ 98-01), X.B] Federally Enforceable Through Title V Permit

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52. Continuous Emission Monitoring: Prior to the date of startup and thereafter, the Permittee shall install, maintain, and operate the following Continuous Emissions Monitoring Systems (CEM) on each Combustion Turbine Generator (CTG) set exhaust vent stack: a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B); and b. A continuous monitoring system to measure stack CO concentrations. The system shall meet EPA monitoring performance specifications (40 CFR 60, Appendix B). [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

53. Continuous Emission Monitoring: The permittee shall install, maintain, and operate a continuously recording fuel gas flow meter on each gas turbine engine. Exhaust gas flow rates shall then be determined from fuel gas flow using EPA Method 19. [PSD permit (SJ 98-01), X.D] Federally Enforceable Through Title V Permit

54. Emission Limits: Emissions from each of the gas turbines (permit units S-3412-1, S-3412-2, S-3412-3, and S-3412-4) shall not exceed the following limits, except during periods of startup, shutdown and recommissioning: a. NOx (as NO2): 17.30 lb/hr and 2.5 ppmvd @ 15 percent O2, based on a 1-hour average; b. 25.30 lb-CO/hr and 6 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads above 221 MW (gross 3-hour average) or 31.40 lb-CO/hr and 10 ppmvd @ 15 percent O2, based on a 3-hour average, whenever the combined-cycle combustion turbine is operating at loads at or below 221 MW (gross 3-hour average). [PSD permit (SJ 98-01), X.E.1] Federally Enforceable Through Title V Permit

55. Emission Limits: Emission rates from each gas turbine shall not exceed the following daily and annual limits, including all periods of startup, shutdown and recommissioning, except NOx daily limits may be exceeded during recommissioning periods: NOx (as NO2): 511.4 lb/day, 73.0 tons/yr; CO: 1,873.0 lb/day, 109.0 tons/yr; SO2: 91.4 lb/day ,15.3 tons/yr. The annual limit is a 12-month rolling average. [PSD permit (SJ 98-01), X.E.2] Federally Enforceable Through Title V Permit

56. Emission Limits: The following definitions apply to the PSD permit: a. Startup of the combustion turbine is defined as the period beginning with combustion turbine light-off, until the unit reaches minimum load; b. Startup of the steam turbine is defined as the period when the combustion turbine output is reduced to below minimum load, in order to engage the steam turbine, until the unit again reaches minimum load; c. Shutdown is defined as the period beginning with initiation of combustion turbine shutdown sequence and ending either with the cessation of firing of the combustion turbine engine, or when the unit ramps back up after an aborted shutdown, until the unit reaches minimum load; d. Minimum load is defined as the minimum combustion turbine megawatt output at which the combustion turbine achieves stable operation and maintains compliance with the ppmv emission limits in Condition X.E.1 of the PSD permit. [PSD permit (SJ 98-01), X.E.3] Federally Enforceable Through Title V Permit

57. Emission Limits: Each startup, whether of the combustion or steam turbine, shall not exceed three hours per occurrence. Each shutdown shall not exceed one hour per occurrence. [PSD permit (SJ 98-01), X.E.4] Federally Enforceable Through Title V Permit

58. Recommissioning Periods: Recommissioning is defined as the period following an inspection, maintenance, repair and/or overhaul outage where the source conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. A recommissioning period for any single outage shall not exceed 60 cumulative days of combustion turbine firing. [PSD permit (SJ 98-01), X.F.1] Federally Enforceable Through Title V Permit

59. Recommissioning Periods: Prior to commencing a recommissioning period, permittee shall perform a PSD applicability determination for the action(s) triggering the recommissioning period. [PSD permit (SJ 98-01), X.F.2] Federally Enforceable Through Title V Permit

60. Recommissioning Periods: Permittee shall maintain a copy of each PSD applicability determination on site. In addition, if the action(s) triggering the recommissioning period include(s) the replacement of parts that could affect capacity or emissions, or an overhaul outage, then the permittee shall provide a copy of such determination to EPA prior to the start of the recommissioning period. [PSD permit (SJ 98-01), X.F.3] Federally Enforceable Through Title V Permit

61. Recommissioning Periods: Emission rates from each combustion turbine shall not exceed the following limits during a recommissioning period: 439.6 lbs-CO per hr; 517.3 lbs-NOx per hr; 4,790.0 lbs-NOx per day; 4,443.0 lbs-CO per recommissioning event; 8,545.0 lbs-NOx per recommissioning event. [PSD permit (SJ 98-01), X.F.4] Federally Enforceable Through Title V Permit

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62. Recommissioning Periods: The permittee shall maintain the following records for each recommissioning period: a. The number of days the combustion turbine is fired; b. Hourly and daily emissions, in lbs/hr and lbs/day, of NOx and CO emitted; c. Total emissions of NOx and CO emitted during the recommissioning period; d. Documentation of the testing and tuning activities which occurred during the recommissioning period. [PSD permit (SJ 98-01), X.F.5] Federally Enforceable Through Title V Permit

63. Recommissioning Periods: Pursuant to 40 CFR 60.8, within 30 days after the end of a recommissioning period, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. Upon written request and adequate justification from the Permittee, EPA may waive a performance test after a recommissioning period. [PSD permit (SJ 98-01), X.F.6] Federally Enforceable Through Title V Permit

64. Performance Tests: Pursuant to 40 CFR 60.8, within 60 days after achieving the maximum production rate of the affected emission units, but no later than 180 days after the initial startup of equipment (as defined in 40 CFR 60.2), and at such other times as specified by the Regional Administrator, the owner/operator shall conduct or cause to be conducted performance tests (as described in 40 CFR 60.8) for NOx and CO and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NOx and CO shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from the Permittee, EPA may approve the conducting of performance tests at a lower specified production rate. After initial performance test and upon written request and adequate justification from the Permittee, EPA may waive a specified annual test for the facility. [PSD permit (SJ 98-01), X.G.1] Federally Enforceable Through Title V Permit

65. Performance Tests: Performance tests for the emissions of CO and NOx shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods, or alternatives approved by EPA, shall be used: a. Performance tests of the emissions of CO shall be conducted using EPA Methods 1-4 and 10; b. Performance tests of the emissions of NOx shall be conducted using EPA Methods 1-4 and 7E; c. Natural gas sulfur content shall be tested according to ASTM D3246. The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test. Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above mentioned test methods, equivalent methods may be used with prior written approval from EPA. [PSD permit (SJ 98-01), X.G] Federally Enforceable Through Title V Permit

66. Performance Tests: For performance test purposes, sampling ports, platforms, and access shall be provided by the Permittee on the exhaust stack in accordance with 40 CFR 60.8(e). [PSD permit (SJ 98-01), X.G.4] Federally Enforceable Through Title V Permit

67. Recordkeeping and Reporting: A file shall be maintained of all measurements including continuous monitoring system evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, performance and all other information required by 40 CFR 60 or 75 recorded in a permanent form suitable for inspection. The file shall be retained for at least five (5) years following the date of such measurement, maintenance, reports, and records. [PSD permit (SJ 98-01), X.H.1] Federally Enforceable Through Title V Permit

68. Recordkeeping and Reporting: The Permittee shall maintain an operating log for each combustion turbine, which contains at a minimum, the following information: the start and finish times for all startup, shutdown and recommissioning periods. [PSD permit (SJ 98-01), X.H.3] Federally Enforceable Through Title V Permit

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69. Recordkeeping and Reporting: The permittee shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following: a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions; b. Specific identification of each period of excess emissions that occurs during startups, shutdown, recommissioning, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported; c. The date and time identifying each period during which a CEMS was inoperative, repaired, or adjusted, except for zero and span checks, and the nature of the system repairs or adjustments; d. When no excess emissions have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report; e. Excess emissions shall be defined as any 1-hour period during which the average emissions of NOx, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.a of the PSD permit; f. Excess emissions shall be defined as any 3-hour period during which the average emissions of CO, as measured by the CEM, exceeds the maximum emissions limits set forth in Condition X.E.1.b of the PSD permit. [PSD permit (SJ 98-01), X.H.4] Federally Enforceable Through Title V Permit

70. Recordkeeping and Reporting: The facility is subject to the recordkeeping and reporting requirements of the applicable New Source Performance Standards (NSPS) - 40 CFR Part 60, as described in this permit. [PSD permit (SJ 98-01), X.H.5] Federally Enforceable Through Title V Permit

71. New Source Performance Standards: The facility's combustion turbines are subject to the federal New Source Performance Standards (NSPS) - 40 CFR Part 60, Subpart GG, as well as the General Provisions of Subpart A. The owner/operator shall meet the applicable requirements of the aforementioned NSPS Subparts. [PSD permit (SJ 98-01), X.I] Federally Enforceable Through Title V Permit

72. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: District Rule 4801 and Kern County Rule 407 as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

73. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332, 60.333 (a) and (b); 40 CFR 60.334(a), (b)(2), (c), and 40 CFR 60.335(b); District Rule 4703 (as amended 9/20/07), Sections 5.1.1, 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 from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

74. Compliance with permit conditions in the Title V permit for this unit 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 Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

75. Compliance with permit conditions in the Title V permit for this unit shall be deemed compliance with the applicable requirements of District Rule 4201 (as amended 12/17/92). A permit shield from these requirements is granted to this unit. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

76. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

77. Gas turbine engine exhaust shall be equipped with an additional continuous NOx analyzer located upstream of the SCR unit for purposes of monitoring ammonia slip (Ammonia Slip NOx Analyzer). This analyzer and shall be capable of monitoring NOx concentration at this location during startups and shutdowns as well as normal operating conditions. [District Rule 4102]

78. The Ammonia Slip NOx Analyzer shall conform to the specifications of Section 6.0, Performance Specification 2, 40 CFR 60, Appendix B. [District Rule 4102]

79. Calibration drift (CD) assessment for the Ammonia Slip NOx Analyzer shall be performed in accordance with requirements specified in section 4 of Appendix F to 40 CFR Part 60. [District Rule 4102]

80. A Cylinder Gas Audit (CGA) of the Ammonia Slip NOx Analyzer shall be performed each quarter in accordance with the procedures of specified in section 5 of Appendix F to 40 CFR Part 60. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

81. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required by this permit, the Ammonia Slip NOx Analyzer shall be in continuous operation. [District Rule 4102]

82. The Ammonia Slip NOx Analyzer shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [District Rule 4102]

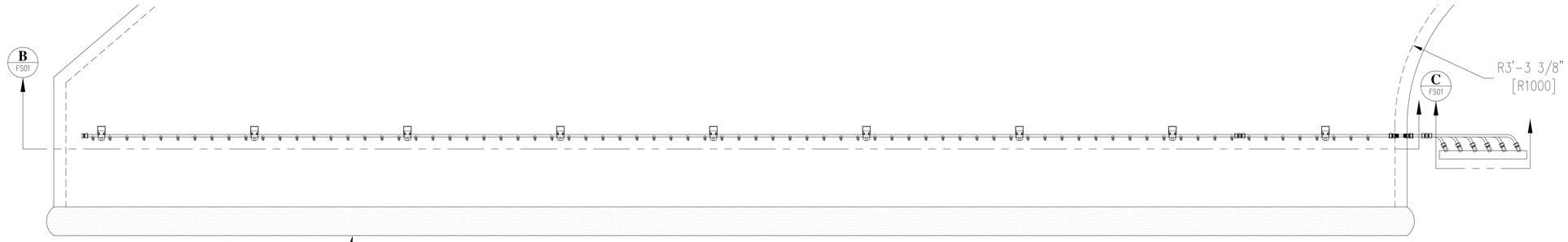
83. Emission data from the Ammonia Slip NOx Analyzer, including the calculated ammonia slip, shall be obtained for at least 18 hours in at least 22 out of 30 successive gas turbine operating days. [District Rule 4102]

84. Notification and record keeping for the Ammonia Slip NOx Analyzer shall be in accordance with the requirements specified in 40 CFR 60.7. [District Rule 4102]

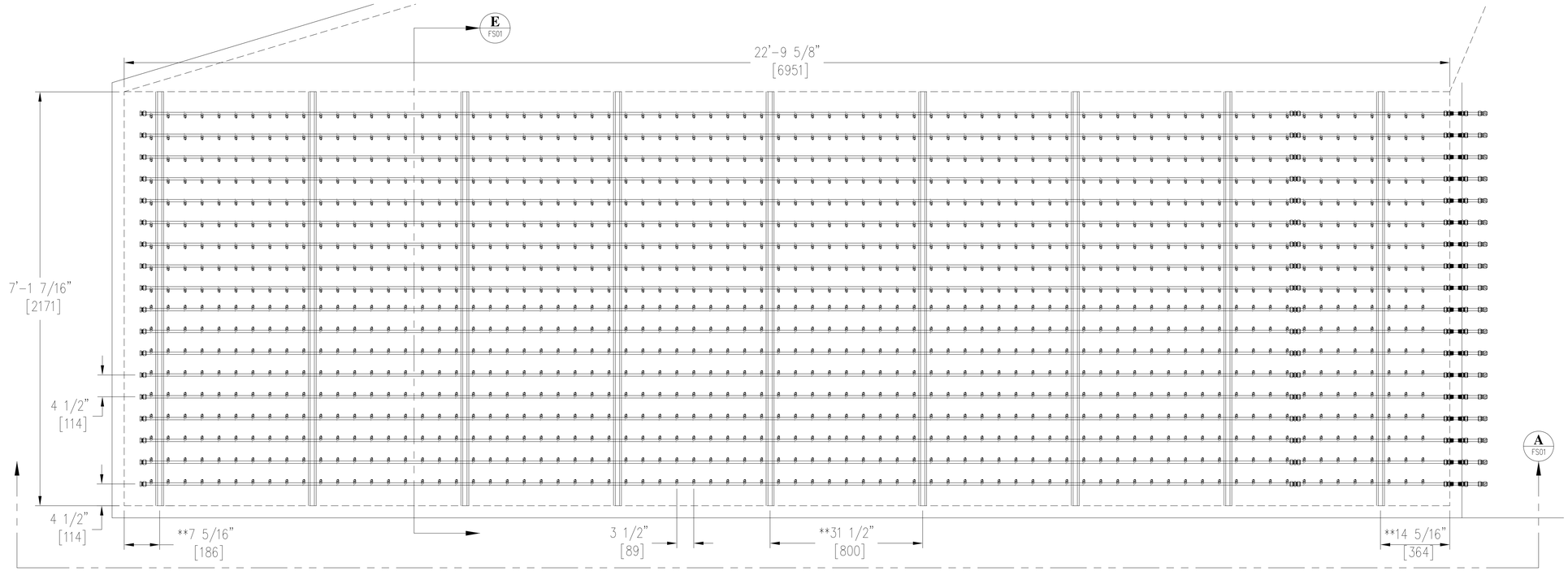
85. An excess ammonia emissions and monitoring system performance report for the Ammonia Slip NOx Analyzer, in accordance with the requirements specified in 40 CFR 60.7, shall be submitted to the APCO for each calendar quarter. [District Rule 4102]

86. Although specific sections of 40 CFR 60 are referenced for convenience in permit conditions for the Ammonia Slip NOx Analyzer, the equipment is not subject to federal enforcement or other federal monitoring, reporting or recordkeeping requirements. [District Rule 4102]

APPENDIX C. MANUFACTURER SPECIFICATIONS



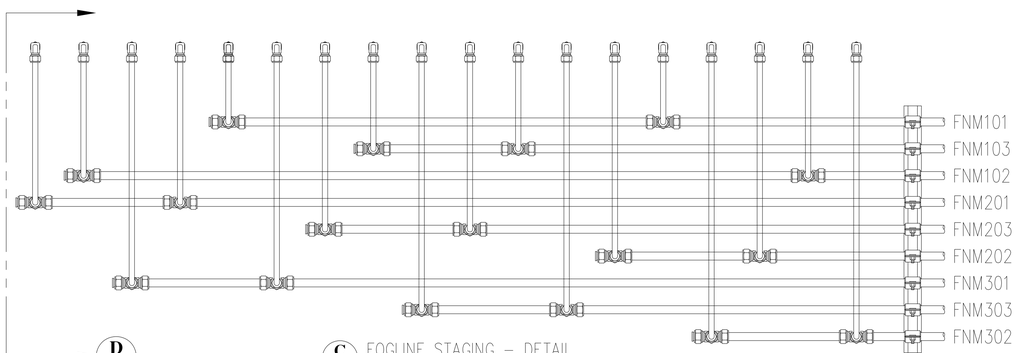
A FS01 TURBINE – ELEVATION
SCALE: 1" = 1'-0"



**NOTE:
–SUPPORT STRUT SPACING IS CALCULATED BASED ON DETAILED ANALYSIS. DO NOT CHANGE SPACING WITHOUT CONSULTING WITH MEE INDUSTRIES.

B FS01 FOG NOZZLE MANIFOLDS – PLAN
SCALE: 1" = 1'-0"

*NOTE:
–PLUGS TO BE ADJUSTED TO MATCH LOCATION OF TURBINE INLET SUPPORT BEAMS.
–PLUGS REDUCE SPRAY IMPACT ON BEAMS.



C FS01 FOGLINE STAGING – DETAIL
SCALE: 1-1/2" = 1'-0"

PUMP	1			2			3			TOTAL
NOZZLES	152	152	152	152	152	152	152	152	152	1368

	STAGE	PUMP 1 OPEN	PUMP 1 VALVE 1	PUMP 1 VALVE 2	PUMP 2 OPEN	PUMP 2 OPEN	PUMP 2 OPEN	PUMP 3 OPEN	PUMP 3 OPEN	PUMP 3 OPEN	TOTAL NOZZLES
WET COMPRESSION	1	152									152
	2	152	152								304
	3	152	152	152							456
	4	152			152	152	152				608
	5	152	152		152	152	152				760
	6	152	152	152	152	152	152				912
	7	152			152	152	152	152	152	152	1064
	8	152	152		152	152	152	152	152	152	1216
	9	152	152		152	152	152	152	152	152	1368
GPM		12.16	12.16	12.16	12.16	12.16	12.16	12.16	12.16	12.16	109.44
		36.48			36.48			36.48			109.44

NOZZLE LINE QUANTITY	NOZZLE LINE LENGTH	NOZZLE COUNT	TOTAL NOZZLES
18	23FT	76	1368

TOTAL NOZZLES ... 1368

PRELIMINARY

Mee Industries Inc.
Tl: 626.359.4550 www.meeifog.com
19321 Askalona St, Irwindale, CA 91702, USA

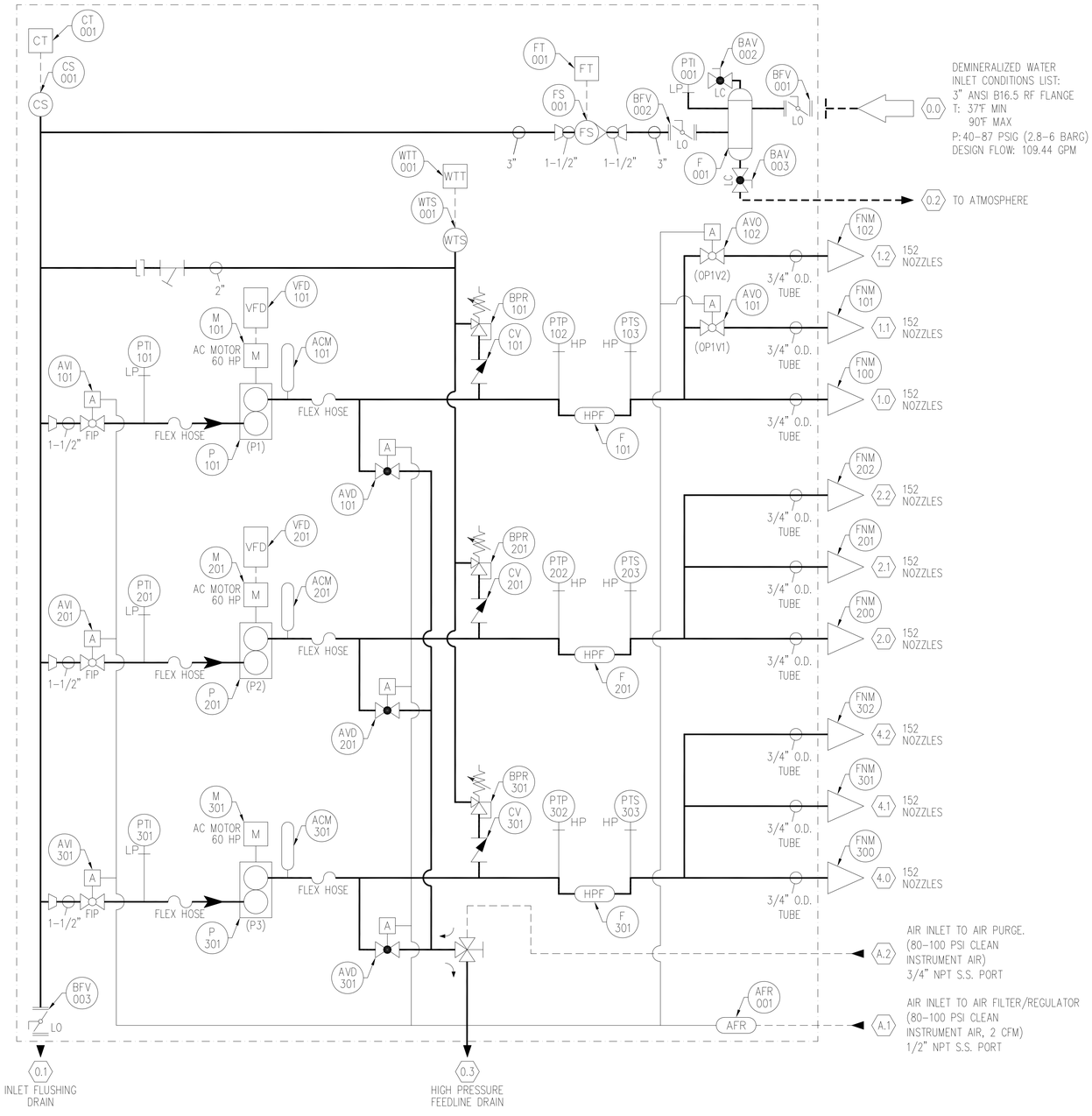
NO.	DATE	REVISIONS
		Approved by:
1		

CXA LA PALOMA, LLC
LA PALOMA POWER PLANT

MEEFOG INLET AIR DUCT
MANIFOLD LAYOUT DETAILS
ALSTOM GT-24

Design By:	JJM	Log #:	PA10279a
Drawn By:	KBR	Dwg #:	PA10279a
Dwg Date:	01/26/24	Prod #:	PA0279
Tolerance:	N/A Unless Noted	Sheet:	FS01

GSF3.2.1 Rev A 012017



TAG LIST

ACM101 – 301	ACCUMULATOR (PULSATION DAMPENER) (PUMPS 1 THRU 3)
	CHARGE: 103 BAR (1500 PSI)
AFR001	INSTRUMENT AIR FILTER / REGULATOR
AVD101 – 301	AIR ACTUATED BALL VALVE (NC), (DRAIN) (PUMPS 1 THRU 3)
AVI101 – 301	AIR ACTUATED BALL VALVE, PUMP INLET (PUMPS 1 TRU 3)
AVO101 – 102	AIR ACTUATED BALL VALVE, PUMP OUTLET (PUMPS 1)
BAV002	MANUAL BALL VALVE (NC), (AIR PURGE)
BAV003	MANUAL BALL VALVE (NC), (DRAIN)
BFV001	MANUAL BUTTERFLY VALVE (NO), (SKID INLET WATER)
BFV002	MANUAL BUTTERFLY (NO), (INLET FILTER ISOLATION VAVLE)
BFV003	MANUAL BUTTERFLY VALVE (NC), (DRAIN)
BPR101 – 301	BACK PRESSURE REGULATOR (PUMPS 1 THRU 3) SET POINT: 2000 PSIG (138 BARG)
CS001	CONDUCTIVITY SENSOR
CT001	CONDUCTIVITY TRANSMITTER
CV101 – 301	CHECK VALVE (PUMPS 1 THRU 3)
F001	FILTER
F101 – 301	HIGH PRESSURE FILTER (PUMPS 1 THRU 3)
FNM100 – 302	TO THE FOG NOZZLE MANIFOLDS
FS001	FLOW SENSOR
FT001	FLOW TRANSMITTER
M101 – 301	MOTOR (PUMPS 1 THRU 3)
P101 – 301	FOG PUMP (PUMPS 1 THRU 3)
PTI001	PRESSURE TRANSMITTER, SKID INLET
	ALAM: 30 PSIG (2 BARG) / FAULT: 2 PSIG (0.14 BARG)
PTI101 – 301	PRESSURE TRANSMITTER, PUMP INLET (PUMPS 1 THRU 3)
	ALAM: 30 PSIG (2 BARG) / FAULT: 2 PSIG (0.14 BARG)
PTP102 – 302	PRESSURE TRANSMITTER, PUMP OUTLET (PUMPS 1 THRU 3)
	ALAM: 1900 PSIG (131 BARG) / FAULT: 1750 PSIG (120 BARG)
PTS103 – 303	PRESSURE TRANSMITTER, SKID OUTLET (PUMPS 1 THRU 3)
	ALAM: 1900 PSIG (131 BARG) / FAULT: 1750 PSIG (120 BARG)
VFD101 – 201	VARIABLE FREQUENCY DRIVE (PUMPS 1 THRU 2)
WTS001	WATER TEMPERATURE SENSOR
WTT001	WATER TEMPERATURE TRANSMITTER

PUMP	1			2			3			TOTAL
NOZZLES	152	152	152	152	152	152	152	152	152	1368
STAGE	PUMP 1 OPEN	PUMP 1 VALVE 1	PUMP 1 VALVE 2	PUMP 2 OPEN	PUMP 2 OPEN	PUMP 2 OPEN	PUMP 3 OPEN	PUMP 3 OPEN	PUMP 3 OPEN	TOTAL NOZZLES
1	152									152
2	152	152								304
3	152	152	152							456
4	152			152	152	152				608
5	152	152		152	152	152				760
6	152	152	152	152	152	152				912
7	152			152	152	152	152	152	152	1064
8	152	152		152	152	152	152	152	152	1216
9	152	152		152	152	152	152	152	152	1368
GPM	12.16	12.16	12.16	12.16	12.16	12.16	12.16	12.16	12.16	109.44
	36.48			36.48			36.48			109.44

WET COMPRESSION

NOTE: THE STAGING PUMP WILL ALTERNATE BETWEEN PUMPS 1 AND 2.
THE PUMP WITH THE LOWEST RUNNING HOURS WILL BE TURNED 'ON' FIRST.

PIPE SIZE CHART

90°F/32°C TYP. WATER TEMP	0.0	0.1	0.2	0.3	1.0	1.1	1.2	2.0	2.1	2.2	3.0	3.1	3.2
ID	SKID INLET	DRAIN	DRAIN	DRAIN	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET	PUMP OUTLET
GPM/LPM	109.44	–	–	–	12.16	12.16	12.16	12.16	12.16	12.16	12.16	12.16	12.16
PSI	40-87	GRAVITY	GRAVITY	GRAVITY	2000	2000	2000	2000	2000	2000	2000	2000	2000
INTERFACE	3" FLG	3" FLG	3/4" FPT	1/2" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD	3/4" TUBE OD

INSTRUMENT AIR

INSTRUMENT AIR	A.1	A.2
ID	AIR ACTUATOR INLET	AIR PURGE INLET
CFM	2 CFM	
PSI	80-100 PSI	80-100 PSI
INTERFACE	1/2" NPT	3/4" NPT

PRELIMINARY

Mee Industries Inc.
T: 626.359.4550 www.meeiing.com
16021 Arrelene St, Irwindale, CA 91702, USA

NO.	DATE	REVISIONS
1		

Approved by:

CXA LA PALOMA, LLC
LA PALOMA POWER PLANT

PROCESS & INSTRUMENTATION DIAGRAM

Design By:	JDM	Log #:	PA30279a
Drawn By:	KDR	Dwg #:	PA30279a
Dwg Date:	07/26/24	Proj #:	PA30279
Tolerance: N/A Unless Noted		Sheet:	SI.01

GSF3.2.1 Rev A 9/12/17