



ATMOSPHERIC DYNAMICS, INC
Meteorological & Air Quality Modeling

June 28, 2017

San Diego Air Pollution Control District
10124 Old Grove Road
San Diego, California 92131
Attn: Engineering/Permits

Subject Pio Pico Energy Center Initial Title V Permit Application

Dear Madam/Sir:

Atmospheric Dynamics, Inc. is submitting, on behalf of Pio Pico Energy Center, LLC, the initial Title V Permit Application for the Pio Pico Energy Center (PPEC) as per the requirements of the San Diego Air Pollution Control District Regulation XIV (Title V Operating Permits). The application due date is July 2nd, 2017 which is based on the one year anniversary of the first fuel fire date of July 2nd, 2016 (Turbine No. 3 was the first of the three turbines to begin the commencement of commissioning activities and as such, was the first source to combust fuel at the project site). Included in the application are the San Diego Air Pollution Control District (SDAPCD) Title V Forms and supplemental data in order to support the application as summarized in Regulation XIV, Rule 1414.

The project triggers the requirements of Regulation XIV (Title V Operating Permits) through the applicability determination of 40 CFR 60, Part 75 (Acid Rain) as the facility is an acid rain source.

Also included with this package and attached to this cover letter is the Title V Application fee as calculated by the SDAPCD. If you need additional copies or other electronic files, please let us know.

We look forward to working with you. If you have any questions, please do not hesitate to call me at (831) 620-0481. Thank you for your attention in this matter.

Sincerely,

Atmospheric Dynamics, Inc.

Gregory S. Darvin
Senior Meteorologist

cc:
Attachments



Internal Use Only		
APP ID: APCD20 17 -APP-	005036	
SITE ID: APCD20 10 -SITE-	00471	

**GENERAL PERMIT OR
REGISTRATION
APPLICATION FORM**



Submittal of this application does not grant permission to construct or to operate equipment except as specified in Rule 24(c) or (d)

REASON FOR SUBMITTAL OF APPLICATION:

- | | | |
|--|--|--|
| <input type="checkbox"/> New Installation | <input type="checkbox"/> Existing Unpermitted Equipment or Rule 11 Change | <input type="checkbox"/> Modification of Existing Permitted Equipment |
| <input type="checkbox"/> Amendment to Existing Authority to Construct or Application | <input type="checkbox"/> Change of Equipment Location | <input type="checkbox"/> Change of Equipment Ownership (please provide proof of ownership) |
| <input type="checkbox"/> Change of Permit Conditions | <input type="checkbox"/> Change Permit to Operate Status to Inactive | <input type="checkbox"/> Banking Emissions |
| <input type="checkbox"/> Registration of Portable Equipment | <input checked="" type="checkbox"/> Other (Specify) <u>Initial Title V Application</u> | |

List affected APP/PTO Record ID(s): APCD2014-APP-003627 APCD2010-APP-001251

APPLICANT INFORMATION

Name of Business (DBA): Pio Pico Energy Center, LLC
 Does this organization own or operate any other APCD permitted equipment at this or any other adjacent locations? Yes No
 If yes, list assigned Site Record IDs listed on your Permits: _____
 Name of Legal Owner (if different from DBA): Pio Pico Energy Center, LLC

Equipment Owner		Authority to Construct Mailing Address	
Name: Pio Pico Energy Center, LLC		Name: Pio Pico Energy Center, LLC c/o Todd Kutz	
Mailing Address: 7363 Calzada de la Fuente		Mailing Address: 7363 Calzada de la Fuente	
City: San Diego	State: CA	City: San Diego	State: CA
Zip: 92154	Phone: (619) 344-0538	Zip: 92154	Phone: (619) 344-0538
E-Mail Address:		E-Mail Address:	

Permit To Operate Mailing Address		Invoice Mailing Address	
Name: ** same as ATC mailing address **		Name: ** same as ATC mailing address **	
Mailing Address:		Mailing Address:	
City:	State:	City:	State:
Zip:	Phone: ()	Zip:	Phone: ()
E-Mail Address:		E-Mail Address:	

EQUIPMENT/PROCESS INFORMATION: Type of Equipment: Stationary Portable *If portable, please enter below the equipment storage address.* If portable, will operation exceed 12 consecutive months at the same location Yes No

Equipment Location Address: 7363 Calzada de la Fuente City: San Diego State: CA
 Parcel No.: _____ Zip: 92154 Phone: (619) 344-0538 E-mail: _____
 Site Contact: Todd Kutz Phone: (619) 344-0538
 General Description of Equipment/Process: electrical power generation facility

Application Submitted by: Owner Operator Contractor Consultant Affiliation _____

EXPEDITED APPLICATION PROCESSING: I hereby request Expedited Application Processing and understand that:

- a) Expedited processing will incur additional fees and permits will not be issued until the additional fees are paid in full (see Rule 40(d)(8)(iv) for details) b) Expedited processing is contingent on the availability of qualified staff c) Once engineering review has begun this request cannot be cancelled d) Expedited processing does not guarantee action by any specific date nor does it guarantee permit approval.

I hereby certify that all information provided on this application is true and correct.

SIGNATURE: Date: 6-19-17
 Print Name: Greg Trewitt Phone: (303) 623-4111
 Company: Pio Pico Energy Center, LLC E-mail Address: trewittg@southwestgen.com

Internal Use Only

Date: <u>6/30/2017</u>	Staff Initials: <u>cm</u>	Amt Rec'd: <u>\$8945</u>	Fee Schedule: <u>Title V = \$8850 ETM</u>
RNP: <u>0</u>	EMF: <u>0</u>	NBF: <u>95</u> TA: <u>8850</u>	GEN APP Form Rev Date: Feb. 2015

San Diego County Air Pollution Control District
10124 Old Grove Road San Diego CA 92131-1649
(858) 586-2600 FAX (858) 586-2601

TITLE V APPLICATION
Stationary Source Summary (FORM 1401-A1)

Company Name Pio Pico Energy Center, LLC	District Use Only NEDS # _____ SITE ID # _____
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I. FACILITY IDENTIFICATION

- Facility Name (if different than company name): Pio Pico Energy Center, LLC
- Four digit SIC Code: 4911
- Parent Company (if different than Company Name): Pio Pico Energy Center, LLC
- Mailing Address: 7363 Calzada de la Fuente
City San Diego State CA Zip 92154
- Street Address or Source Location: 7363 Calzada de la Fuente
City San Diego State CA Zip 92154
- UTM Coordinates: _____
- Source Located within 50 miles of a state line: Yes No (All sources are within 50 miles)
- Source Located within 1000 feet of a school: Yes No
- Type of Organization: Corporation Sole Ownership Government
 Partnership Utility Company
- Legal Owner's Name: Pio Pico Energy Center, LLC
- Owner's Agent name (if any): Bob Louallen
- Responsible Official: Greg Trewitt
- Plant Site Manager/Contact: Todd Kutz Phone #: 619-344-0538 FAX #: _____
- Application Contact: Greg Trewitt
- Type of Facility: Fossil fueled (nat gas) simple cycle turbine based power plant
- General description of processes/products: Electricity
- Is a Federal Risk Management Plan (RMP) pursuant to Section 112(r) required? Yes No
(If application is submitted after RMP due date, attach verification that plan is registered with the appropriate agency.)

II. TYPE OF PERMIT ACTION (check)	CURRENT PERMIT (permit number)	EXPIRATION (date)
<input checked="" type="checkbox"/> Initial Title V Application	N/A	N/A
<input type="checkbox"/> Permit Renewal		
<input type="checkbox"/> Significant Permit Modification		
<input type="checkbox"/> Minor Permit Modification		
<input type="checkbox"/> Administrative Amendment		

III. DESCRIPTION OF PERMIT ACTION

- Does the permit action requested involve: Temporary Source Voluntary Emissions Caps
 Acid Rain Source Alternative Operating Scenarios Abatement Devices
 CEMs Permit Shield
 Outdated SIP Requirement Streamlining Multiple Applicable Requirement Streamlining
 Source Subject to MACT Requirements [Section 112]
 Source Subject to Enhanced Monitoring (40CFR64) [Compliance Assurance Monitoring]
- Is source operating under a Compliance Schedule? Yes No Proposed
- Is source operating under a Variance Yes No (If Yes, please attach variance information)
- For permit modification, provide a general description of the proposed permit modification:

IV. SUPPLEMENTAL ATTACHMENTS*: Title V application forms and support materials in the identified attachments.

* Means all attachments to the complete application.

San Diego County Air Pollution Control District
10124 Old Grove Road San Diego CA 92131-1649
(858) 586-2600 FAX (858) 586-2601

TITLE V APPLICATION
Stationary Source Summary (FORM 1401-A2)

Company Name	District Use Only
<u>Pio Pico Energy Center, LLC</u>	NEDS # _____ SITE ID # _____

I. MAJOR SOURCE APPLICABILITY

Check appropriate pollutant(s) for which you are a Major Source under Title V. Applicability is based on potential to emit. If more space is necessary, use additional forms. Please type or print legibly.

POLLUTANT	MAJOR SOURCE THRESHOLD TOTAL EMISSIONS, TPY	(check if appropriate)
VOC	100	<input type="checkbox"/>
PM ₁₀	100	<input type="checkbox"/>
SO ₂	100	<input type="checkbox"/>
NO _x	100	<input type="checkbox"/>
CO	100	<input type="checkbox"/>
ODC	100	<input type="checkbox"/>
LEAD COMPOUNDS	10	<input type="checkbox"/>
HAZARDOUS AIR POLLUTANTS		
SINGLE HAP	10	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
COMBINATION HAP	25	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

Attach all necessary calculations to this form as applicable. NOTE: Calculations are only needed if no Emission Inventory is on file with the District

Reference See Attachment E

Inventory Year See Attachment E

6/19/2017


Signature of Responsible Official

Date

Greg Trewitt

(303) 623-4111

Print Name of Responsible Official

Telephone No. of Responsible Official

Sr. VP Operations and Technical Services

Title of Responsible Official

II. EMISSIONS CALCULATIONS ATTACHED (as needed)

Yes No

DISTRICT USE ONLY

Date Application Received: _____

Application # _____

Application Filing Fee: _____

District Received Stamp: _____

Receipt #: _____

Fee Code: _____

**San Diego County Air Pollution Control District
10124 Old Grove Rd., San Diego, CA 92131
(858) 586-2600 FAX (858) 586-2601**

**TITLE V APPLICATION
Insignificant Activity List (FORM 1401-G)**

<p style="text-align: center;">Company Name</p> <p style="text-align: center;"><u>Pio Pico Energy Center</u></p>	<p style="text-align: center;">District Use Only</p> <p style="text-align: center;">NEDS # _____</p> <p style="text-align: center;">SITE ID # _____</p>
<p>Facility Address: <u>7363 Calzada de la Fuente, San Diego, CA 92154</u></p>	

LIST OF EQUIPMENT – INSIGNIFICANT ACTIVITIES

Place a check mark in the appropriate box for equipment that is considered an insignificant activity based on throughput or equipment capacity.

Exemptions based on Size (Capacity)

<u>(Condensed Language of Rule)</u>	<u>Appendix A Citation</u>
<input checked="" type="checkbox"/> Stationary & portable internal combustion engines with ≤ 50 bhp output rating	(d)(1)(iii)
<input type="checkbox"/> Stationary gas turbines with a power rating of < 0.3 megawatt (MW) or a maximum gross heat input rating of 1 million BTUs per hour	(d)(1)(iv)
<input type="checkbox"/> Water cooling towers & ponds with a capacity $< 10,000$ gal/min not used for evaporative cooling of process water or not used for evaporative cooling of water, contaminated water or industrial waste water from barometric jets or from barometric condensers.	(d)(2)
<input type="checkbox"/> Fuel-burning equipment with a maximum gross heat input rate of < 1 million Btu/hour when not part of a process, process line, line, equipment, article, machine or other contrivance for which a permit to operate is required by these Rules and Regulations	(d)(4)(i)
<input type="checkbox"/> Fuel burning equipment with a maximum gross heat input of < 20 million Btu/hour, and fired exclusively with natural gas and/or liquefied petroleum gas	(d)(4)(ii)
<input type="checkbox"/> Steam boilers, process heaters, and steam generators with a maximum gross heat input of < 5 million Btu/hour	(d)(4)(iii)
<input type="checkbox"/> Crucible-type or pot-type furnaces with a brimful capacity of < 450 in ³ of any molten metal	(d)(12)
<input type="checkbox"/> Crucible, pot or induction furnaces with a capacity of ≤ 2500 in ³ , in which no sweating or distilling is conducted and from which only non-ferrous metals except yellow brass, are poured or non-ferrous metals are held in a molten state	(d)(13)
<input type="checkbox"/> Dry batch mixers with ≤ 0.5 cubic yards rated working capacity	(d)(27)
<input checked="" type="checkbox"/> Batch mixers (wet) with ≤ 1 cubic yard capacity where no organic solvents, diluents or thinners are used.	(d)(28)
<input type="checkbox"/> Roofing kettles (used to heat asphalt) with a capacity of ≤ 85 gallons	(d)(33)
<input type="checkbox"/> Abrasive blasting equipment with a manufacturer's-rated sand capacity of < 100 lbs or < 1 ft ³	(d)(34)
<input type="checkbox"/> Paper shredders and paper disintegrators that have a capacity of 600 pounds per hour or less, and the associated conveying systems and baling equipment.	(d)(41)
<input type="checkbox"/> Ovens having an internal volume of ≤ 27 ft ³ in which organic solvents or materials containing organic solvents are charged	(d)(59)
<input type="checkbox"/> Cold solvent cleaning tanks, vapor degreasers, and paint stripping tanks with a liquid surface area of ≤ 1.0 ft ²	(d)(61)(i)
<input type="checkbox"/> Cold solvent cleaning tanks, vapor degreasers, and paint stripping tanks which have a maximum capacity of ≤ 1 gallon	(d)(61)(ii)

TITLE V APPLICATION
Insignificant Activity List (FORM 1401-G)

Continued - Exemptions based on Size (Capacity)

<u>(Condensed Language of Rule)</u>	<u>Appendix A Citation</u>
<input type="checkbox"/> Stationary organic compound storage tanks with a capacity of ≤ 250 gallons	(e)(1)
<input type="checkbox"/> Liquid surface coating application operations using hand-held brushes for application of a primer coating from containers of \leq eight (8) ounces in size, to fasteners to be installed on aerospace parts	(h)(5)
<input type="checkbox"/> Liquid surface coating application operations using air brushes with a coating capacity of ≤ 2 ounces for the application of a stencil coating	(h)(6)
<input type="checkbox"/> Metal inspection tanks that: a) do not utilize a suspension of magnetic or fluorescent dye particles in volatile organic solvent, and b) have a liquid surface area $< 5 \text{ ft}^2$ and c) are not equipped with spray type flow or a means of solvent agitation	(o)(5)
<input type="checkbox"/> Bakery ovens used for baking yeast leavened products where the combined rated heat input capacity is < 2 million Btu/hr	(o)(37)

Exemptions based on Production Rates (Emission Limits)

<input type="checkbox"/> Printing or graphic arts presses located at a stationary source which emits a total of < 15 lbs/day of VOC's subject to Rule 67.16, on each day of operation	(d)(7)
<input type="checkbox"/> Solder levelers, hydrosqueegees, wave solder machines, and drag solder machines which use < 10 lbs/day of any material containing VOCs	(d)(23)
<input type="checkbox"/> Fire extinguishing equipment, using halons with a charge of < 50 lbs. of a Class I or Class II ozone depleting compound.	(d)(31)
<input type="checkbox"/> Coffee roasting equipment with a manufacturer's rating of ≤ 15 lbs/hr Equipment used to manufacture bio-agricultural products for exclusive use in field testing required to obtain FDA, EPA, USDA and /or Cal-EPA approval, provided the uncontrolled emissions of VOCs from all such operations < 5 ton/yr.	(d)(45) (d)(49)(iii)
<input type="checkbox"/> Oil quenching tanks which use < 20 gal/yr of make-up oil	(d)(56)
<input type="checkbox"/> Equipment that is used to conduct research and develop new or improved processes/products, and is operated by technically trained personnel under the supervision of a research director, and is not used in the manufacture of products for sale or exchange for commercial profit, and all emissions are < 15 lbs/day.	(d)(48)
<input type="checkbox"/> Powder coating operations, except metalizing gun operations, where surface preparation or cleaning solvent usage is < 0.5 gal/day	(d)(62)
<input type="checkbox"/> Equipment used to transfer fuel to & from amphibious ships for maintenance purposes, provided total annual transfers $< 60,000$ gal/yr.	(f)(2)
<input type="checkbox"/> Stationary storage tanks (excluding tanks subject to Rule 61.9) used exclusively for the storage of liquid organic solvents used as dissolvers, viscosity reducers, reactants, extractants, cleaning agents or thinners provided that emissions < 15 lbs/day.	(e)(3)
<input type="checkbox"/> Liquid surface coating or adhesive application operations (portable or stationary) where not more than 20 gallons per year of material containing organic compounds are applied	(h)(1)
<input checked="" type="checkbox"/> Liquid surface coating application operations exclusively using materials with a VOC content of < 20 g/L where < 30 gal/day of such materials are applied.	(h)(2)
<input type="checkbox"/> Foam manufacturing or application operations which emit < 5 lbs/day of VOCs	(i)(1)
<input type="checkbox"/> Reinforced plastic fabrication operations using resins such as epoxy and/or polyester which emit < 5 lbs/day of VOCs	(i)(2)
<input type="checkbox"/> Plastics manufacturing or fabrication operations which emit < 5 lbs/day of VOCs	(i)(3)
<input type="checkbox"/> Cold solvent degreasers used for educational purpose and which emit < 5 lbs/day of VOCs	(i)(4)

TITLE V APPLICATION
Insignificant Activity List (FORM 1401-G)

- Golf grip application stations which exclusively use liquid materials with an initial boiling point of 450°F (232°C), or greater and which emit < 5 lbs/day of VOCs. (i)(5)
- Batch-type waste-solvent recovery stills with batch capacity of ≤ 7.5 gallons for onsite recovery provided the still is equipped with a safety device & VOC emissions are < 5 lbs/day (i)(6)
- Peptide and DNA synthesis operations which emit < 5 lbs/day of VOCs (i)(7)
- Equipment used for washing or drying articles fabricated from metal, cloth, fabric or glass, provided that no organic solvent is employed in the process and that no oil or solid fuel is burned and none of the products being cleaned has residues of organic solvent and VOC emissions are <5 lbs/day (i)(8)
- Hot wire cutting of expanded polystyrene foam which emit < 5 lbs/day of VOCs. (i)(9)
- Any coating and/or ink manufacturing operations located at a stationary source, which emit < 15 lbs/day of VOCs. (o)(9)
- Any operation producing materials for use in cosmetic or pharmaceutical products and/or manufacturing cosmetic or pharmaceutical products by chemical processes, which emit < 15 lbs/day of VOCs (o)(12)
- Refrigeration units except those used as, or with, air pollution control equipment with a charge of < 50 lbs of a Class I or II ozone depleting compound. (o)(18)
- Atmospheric organic gas sterilizer cabinets where ethylene oxide emissions are < 5 lbs/yr (o)(28)
- Aerosol can puncturing/crushing operations which vents all emissions through a properly operated/maintained carbon canister, provided < 500 cans/day are processed. (o)(29)(ii)
- Solvent wipe cleaning operations using a container applicator that minimizes emissions to the air where the uncontrolled emissions of VOCs < 5 ton/yr, or the total purchase of solvents < 1,500 gal/yr, or the total purchase of solvents containing a single HAP < 350 gal/yr. (o)(32)
- Equipment approved for use by the EPA for recovering and/or recycling CFCs provided such equipment is charged with < 50 lbs. of a Class I or II ozone depleting compound. (o)(33)
- Stationary IC engines rated at ≤ 200 bhp installed and operated before November 15, 2000, which operate < 200 hr/yr. (o)(34)(ii)



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

June 27, 2017

San Diego Air Pollution Control District
10124 Old Grove Road
San Diego, California 92131
Attn: Engineering/Permits

Subject Pio Pico Energy Center Initial Title V Permit Application

Dear Madam/Sir:

Pio Pico Energy Center, LLC is submitting the attached initial Title V Permit Application for the Pio Pico Energy Center (PPEC) as per the requirements of the San Diego Air Pollution Control District Regulation XIV (Title V Operating Permits). The application due date is July 2nd, 2017 which is based on the one year anniversary of the first fuel fire date of July 2nd, 2016 (Turbine No. 3 was the first of the three turbines to begin the commencement of commissioning activities and as such, was the first source to combust fuel at the project site). Included in the application are the San Diego Air Pollution Control District (SDAPCD) Title V Forms, fees, and supplemental data in order to support the application as summarized in Regulation XIV, Rule 1414.

The project triggers the requirements of Regulation XIV (Title V Operating Permits) through the applicability determination of 40 CFR 60, Part 75 (Acid Rain) as the facility is an acid rain source.

Existing Project and Process Description

The PPEC is a simple-cycle turbine electrical generating facility with a total nominal base load net power output of 319 MW. The facility operates under an existing SDAPCD Startup Authorization (APCD2014-APP-003627) which will expire on August 8th, 2017.

The PPEC is located on an unincorporated industrial area in Otay Mesa in San Diego County. The project location is on the southeast corner of the Alta Road and Calzada de la Fuente intersection, west of the existing Otay Mesa Generating Project.

The PPEC utilizes three (3) General Electric (GE) LMS100 PA intercooled natural gas fired combustion turbine generators (CTGs), each equipped with water injection, a selective catalytic reduction (SCR) system and an oxidation catalyst system. The nominal net power output is approximately 106 megawatts (MW) with a corresponding heat input of 1,000 million British thermal units per hour (MMBtu/hr) per turbine (at 63°F ambient temperature and based on the higher heating value of natural gas fuel). The combustion turbines are also equipped with evaporative coolers that can be used to cool the inlet air to each turbine to increase power during periods of high ambient temperature. Each CTG is followed by a selective catalytic reduction (SCR) system to reduce oxides of nitrogen (NO_x) emissions and an oxidation catalyst to control carbon monoxide (CO) and volatile organic compound (VOC) emissions in the turbine exhaust. Intercooling is accomplished for each turbine with an external heat exchanger using water to cool the interstage compressed air from the turbine. The water exiting the heat exchanger is in turn cooled



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

in a hybrid dry/wet cooling system utilizing dry cooling with ambient air followed by a forced draft wet surface to air cooler (WSAC), which is similar to a cooling tower except the process water is segregated from the wet surface cooling. The project is fueled exclusively by natural gas.

Each LMS100 PA CTG consists of a stationary combustion turbine generator and associated auxiliary equipment. Thermal energy produced in the CTG through combustion of natural gas is converted to mechanical energy to drive the combustion turbine compressor and electric generator.

The simple-cycle CTG incorporates a compressor intercooler and increased firing temperature to produce power at higher efficiency than other simple-cycle CTGs. Filtered and cooled air drawn into the combustion turbine is compressed and cooled, then compressed to higher pressure before being combusted in the turbine combustor. Water is injected into the combustor to temper the combustion temperature and to reduce thermal NO_x production.

The one clock hour NO_x emission concentration of the combustion gases exiting the turbine is controlled to 2.5 parts per million by volume on a dry basis (ppmvd) averaged over one clock hour and corrected to 15 percent oxygen (at 15% O₂) by a combination of the water injection in the CTG and the SCR system. In the SCR, ammonia is injected into the CTG exhaust stream via nozzles located upstream of the catalyst module. Ammonia slip, or the concentration of unreacted ammonia in the exhaust stack, is limited to 5.0 ppmvd at 15% O₂ averaged over one clock hour. The CTG is also equipped with an oxidation catalyst to control CO emissions leaving the exhaust stack to 4.0 ppmvd and VOC emissions to 2.0 ppmvd as methane, both at 15% O₂ averaged over one clock hour. Emissions of PM₁₀/PM_{2.5} and SO₂ are controlled based on the exclusive use of natural gas. Exhaust from each CTG is discharged from individual 14.5-foot diameter stacks that are 100-feet in elevation.

A partial dry-cooling system (PDCS), which is a closed-looped two-stage cooling system is used for the plant. In this system, heat rejected from the turbine compressor and the lube oil system is cooled using ambient air in a dry-cooling system, followed by a closed-loop WSAC for additional cooling by evaporating water from the surface of a heat exchanger tubes enclosing the process water.

Water supplied by the Otay Water District is used for cooling system makeup, the WSAC, CTG water injection, and CTG inlet air evaporative cooler makeup. Makeup water for the cooling water system is stored in a 500,000-gallon raw water storage tank. This raw water is treated with water-conditioning chemicals to minimize corrosion, bio-fouling, and formation of mineral scale. Demineralized water used for CTG water injection is recycled water that is filtered, demineralized and stored in a 240,000 gallon tank.

Each CTG is equipped with a continuous emission monitoring systems (CEMS) to sample, analyze, and record the natural gas fuel flow rate, NO_x and CO concentration levels, and percentage of O₂ in the exhaust gas from the exhaust stack. The data is transmitted to a data acquisition and handling system (DAHS) that stores the data and can generate emission reports. The DAHS also include alarms that will send signals to the plant distributed control system (DCS) when emission limits are approached or exceeded.



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 7363 Calzada De La Fuente
 San Diego, California 92154

Table 1 presents the PPEC potential to emit (PTE) permitted emissions.

Table 1 – Allowed Project Total Annual Emissions			
Pollutant	Turbines Total Annual Emissions, tons/yr	WSAC Annual Emissions, tons/yr	Project Total Annual Emissions, tons/yr
NOx	70.41	0	70.41
CO	96.39	0	96.29
VOCs	19.41	0	19.41
PM10	35.76	1.43	37.19
PM2.5	35.76	1.43	37.19
SOx	4.12	0	4.12

First Fire Dates for Determining Title V Application Submittal Date

PPEC commenced first fire operations on Turbine No. 3 on July 2nd, 2016 with Turbine No. 2 commencing first fire on July 19th, 2016 and Turbine No. 1 on August 6th, 2016. Based on the earliest of the three dates, the first fire date of Turbine No. 3 establishes the July 2nd 2017 submittal date of the initial Title V application as per SDAPCD Rule 1414(c) which requires that the application be submitted not later than 12 months after the source has commenced operation. Attachment A includes the individual first fire notifications as provided to the SDAPCD.

Compliance Plans

The PPEC is currently in compliance with the applicable local standards, permit limits and SDAPCD regulations. Therefore, no compliance plan is included with the application.

Application Forms

The operating permit forms are provided Attachment A in the following order:

Form Order	Form Filename
1	General Permit Application
2	Form 1401-A1-A2 Stationary Source Summary
3	Form1401-G Insignificant Activity List
4	Form 1401-H1 Applicable Requirements Summary Checklist
5	Form 1401-H2 List of Permits by Equipment Category



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

6	Form 1401-I Certification Statement
7	Form 1401-K Compliance Certification Schedule
8	Form 1401-L Schedule of Compliance
9	Form 1401-M Abatement Devices
10	Form 1401-N1-N2 Alternative Operating Scenario
11	Form 1401-O Multiple Applicable Requirements Streamlining
12	Form 1401-Q Permit Shield

Form 1401-N (Alternative Operating Scenarios) was utilized to establish the following proposed language in the Title V permit. The proposed alternative operating scenario will not result in any increases or changes to the existing facility emission limits.

Alternative Operating Scenario Included in Forms 1401 N1
ROUTINE MAINTENANCE, REPLACEMENT AND REPAIR (RMRR)

84. *Turbine Replacement – This condition addresses the requirements for a turbine replacement with a like-kind unit. The turbine which is removed would be repaired, and placed in storage, for use at the next scheduled major over-haul.*

The replacement turbine, upon installation and commencement of operations, shall comply at all times with all conditions on this permit and all applicable rules and regulations. The turbine replacement shall not result in either a net emission increase or project emission increase under NSR. (Rule 11, Rule 20.1, Rule 20.2, Rule 20.3)

85. *Turbine Repair – This condition addresses the requirement where an existing turbine cannot be replaced by a like-kind unit, but rather must be repaired on-site through the overhaul and replacement of major turbine components.*

The repaired turbine, upon completion of repairs and return to service, shall comply at all times with all conditions on this permit and all applicable rules and regulations. The turbine repair shall not result in either a net emission increase or project emission increase under NSR. (Rule 11, Rule 20.1, Rule 20.2, Rule 20.3)

86. *Approved periods of testing, tuning, tuning and maintenance shall not exceed either 720 unit operating minutes per calendar day or 40 hours per calendar year for any of these purposes. Any period of operation where the emission controls are in full operation as required by this permit and as shown by DAS/CEMS records shall not be included in determination of these limits. [Rule 20.2(d)(1)]*



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7363 Calzada De La Fuente
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87. *In order to claim that a period of operation meets the requirements for an approved period of testing, tuning, tuning and maintenance, the owner or operator must maintain the following records for each period:*
- a. Date(s) and time(s) of operation*
 - b. Purpose of operation*
 - c. Any applicable test procedure, regulation, or other records to demonstrate the need or purpose for the operation*
 - d. Technical justification that steady-state emission standards cannot be met during this operation. Acceptable technical justifications include: need to operate turbine for extended period of time at low load, need to operate turbine in transient modes that exceed the ability of the emission controls to maintain steady state emission levels, tuning of the system or emission controls that involves operation outside the normal acceptable operating ranges for the emission control system, and any other operating scenarios that have been approved by the District.*

[Rule 20.2(d)(1)].

SDAPCD Startup Authorization/Permit to Operate

A copy of the most recent Startup Authorization/Permit to Operate (SA/PTO) is included in Attachment B. The applicable forms in Attachment A utilized the conditions as summarized in this SA/PTO. It should be noted that the SDAPCD is currently reviewing proposed changes to the existing SA/PTO. Once these changes are incorporated into the final SA/PTO, the Title V application will be amended to include the additional language.

Revised Acid Rain Forms

The PPEC has been operating under an existing Acid Rain permit with a designated representative. As the facility has recently had a change of ownership, a revision to the Acid Rain permit as well as assigning a new designated representative is required. The signed Certificate of Representation and revised Acid Rain Permit Application are included with this application in Attachment C.

SDAPCD Applicable Rules for the PPEC

The SDAPCD and Federal NSR regulations applicable to the PPEC are included in Attachment D and as referenced in the applicable Title V forms in Attachment A. The applicable rules analysis is based on the August 25th, 2015 SDAPCD Final Determination of Compliance (FDOC) as provided by the SDAPCD.

PPEC Emissions Data

SDAPCD calculated the emissions data, based on the turbine heat rate increase up to 1000 MMBtu/hr and were summarized in the most recent Final Determination of Compliance are included in Attachment E.



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

Application Fees

The SDAPCD was contacted to determine the initial Title V permit application fee, as per Regulation II, Rule 40. The \$8,945 fee calculation provided by the SDAPCD and included in the application as Attachment F is based on the following:

- \$8,850 Title V Fee assuming 50 hours of a Project Engineer
- \$95 Processing Fee

Accompanying the application is a check for \$8,945 made out to the San Diego Air Pollution Control Agency.

Additional Information

Additional information has been provided in the form of five attachments which were used to support the initial Title V Application. The additional information includes the following data:

- Attachment B Current SDAPCD Operating Permit (SA) APCD2014-APP-003627 Expires August 8, 2017
- Attachment C Revised Acid Rain Permit Applications
- Attachment D SDAPCD Applicable Rule Analysis
- Attachment E Emissions Summary Data
- Attachment F Permit Application Fee Calculation

Please let us know if you need any additional forms or clarifying information. If you have any questions or comments, please do not hesitate to call Gregory Darvin (Atmospheric Dynamics, Inc.) at (831) 620 0481.

A handwritten signature in blue ink, appearing to read "Greg Trewitt".

Greg Trewitt

Southwest Generation

VP of Operations and Technical Services



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

Pio Pico Title V Application

Attachments

- Attachment A SDAPCD Title V Forms and First Fire Notification
- Attachment B Current SDAPCD Operating Permit (S/A)
APCD2014-APP-003627
Expires August 8, 2017
- Attachment C Revised Acid Rain Permit Application
- Attachment D SDAPCD Applicable Rule Analysis
- Attachment E Emissions Summary Data
- Attachment F Permit Application Fee Calculation



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

Attachment A

SDAPCD Title V Forms and First Fire Notifications

San Diego County Air Pollution Control District
 10124 OLD GROVE ROAD SAN DIEGO CA 92131-1649
 (858) 586-2600 FAX (858) 586-2601

TITLE V APPLICATION
Applicable Requirements Summary Checklist (FORM 1401-H1)

Company Name Pio Pico Energy Center, LLC (2014APP003627)	District Use Only NEDS # _____ SITE ID # _____
--	--

APPLICABLE REQUIREMENTS: Applicable requirements which apply to an entire facility are listed first. The applicant should check appropriate boxes on the form and attach emission unit specific permit number lists where necessary. Where streamlining is employed, note on this form. If information does not fit in the space allotted, attach documentation and reference it on this form. **Type or print legibly.**
T = turbines W=wet sac

RULE	RULE DESCRIPTION	Test Method or Rule Section	Monitoring, Records, Reports, Rule Section	Facility	T	W	Future Effective Date
Facility Applicable Requirement Description							
10(a)	Permits Required – (a) Authority to Construct			X	X	X	
10(b)	Permits Required – (b) Permit to Operate			X	X	X	
19	Provision of Sampling & Testing Facilities			X	X	X	
19.2	Continuous Emission Monitoring Requirements			X	X		
19.3	Emission Information			X			
NSR	New Source Review			X			
PSD	Prevention of Significant Deterioration			X	X	X	
21	Permit Conditions			X			
50	Visible Emissions			X			
51	Nuisance			X			
60	Circumvention			X			
67.0	Architectural Coatings	(b)		X			
67.17	Storage of Materials Containing VOC	(c)		X			
71	Abrasive Blasting						
98	Breakdown Conditions: Emergency Variance			X	X	X	
101	Burning Control						
131	Stationary Source Curtailment Plan						
132	Traffic Abatement Plan						

TITLE V APPLICATION
Applicable Requirements Summary Checklist (FORM 1401-H1) - continued

RULE	RULE DESCRIPTION	Test Method or Rule Section	Monitoring, Records, Reports, Rule Section	Facility	T	W					Future Effective Date
Equipment Specific Applicable Requirement Description											
50	Visible Emissions				X	X					
51	Nuisance				X	X					
52	Particulate Matter	Method 5			X	X					
53	Specific Contaminants	Method 5			X	X					
53.1	Scavenger Plants										
54	Dust and Fumes	Method 5									
58	Incinerator Burning										
59	Control of Waste Disposal – Site Emissions	(e)	(e) & (f)								
60	Circumvention				X	X					
61.1	Receiving & Storing VOCs at Bulk Plants & Terminals	(d)	(c)(7)								
61.2	Transfer of VOCs into Mobil Transport Tanks	(c)(10)									
61.3	Transfer of VOCs into Stationary Storage Tanks		(c)(2)(iii)								
61.3.1	Transfer Of Gasoline Into Stationary Underground Storage Tanks (not in the SIP)	(h)	(g)								
61.4	Transfer of VOCs into Vehicle Fuel Tanks										
61.4.1	Transfer Of Gasoline From Stationary Underground Storage Tanks Into Vehicle Fuel Tanks (not in the SIP)	(g)	(f)								
61.5	Visible Emissions Standards for Vapor Control Equip.		VE								
61.7	Spillage & Leakage of VOCs										
61.8	Certification Requirements for Vapor Control Equip.										
62	Sulfur Content of Fuels				X						
64	Reduction of Animal Matter										
66	Organic Solvents	(p)	(o)								
66.1	Misc. Surface Coating Operations & other Processes Emitting VOC (not in SIP)	(h)	(f)								
67.1	Alternative Emission Control Plans (AECPL)	(c)	(d)								
67.2	Dry Cleaning - Petroleum Solvent	(f)	(e)								
67.3	Metal Parts Coating	(g)	(f)								
67.4	Can & Coil Coating	(g)	(f)								
67.5	Paper, Film and Fabric Coating	(f)	(e)								

TITLE V APPLICATION
Applicable Requirements Summary Checklist (FORM 1401-H1) - continued

RULE	RULE DESCRIPTION	Test Method or Rule Section	Monitoring, Records, Reports, Rule Section	Facility	T	W	Future Effective Date
67.6	Solvent Cleaning Operation	(f)					
67.6.1	Cold Solvent Cleaning and Stripping Operations	(g)	(f)				
67.7	Cutback & Emulsified Asphalt	(f)	(e)				
67.9	Aerospace Coating Operations	(g)	(f)				
67.10	Kelp Processing and Bio-Polymer Mfg.	(f)	(e)				
67.11	Wood Products Coating Operations (not in SIP)						

RULE	RULE DESCRIPTION	Test Method or Rule Section	Monitoring, Records, Reports, Rule Section	Facility	T	W	Future Effective Date
67.12	Polyester Resin Operations	(g)	(f)				
67.15	Pharmaceutical & Cosmetic Manufacturing	(e)					
67.16	Graphic Arts Operations	(g)	(f)				
67.17	Open VOC Containers	(e)					
67.18	Marine Coating Operations	(g)	(f)				
67.19	Coating and Printing Inks Mfg. Operations	(g)	(f)				
67.20	Motor Vehicle & Mobile Equipment Refinishing Operations						
67.21	Adhesive Material Application Operations						
67.22	Expandable Polystyrene Foam Products Manufacturing Operations (not in SIP)						
67.24	Bakery Ovens	(f)	(e)				
68	Fuel Burning Equipment - NOx						
69.2	Boilers	(f)	(e) & (g)				
69.3	Stationary Gas Turbine Engines - RACT	(f)	(e) & (g)		X*		
69.3.1	Stationary Gas Turbine Engines - BARCT (not in SIP)	(f)	(e) & (g)		X*		
69.4	Stationary Internal Combustion Engines - RACT	(f)	(e)				
69.4.1	Stationary Internal Combustion Engines - BARCT (not in SIP)	(f)	(e)				
70	Orchard Heaters						

* Rules 69.3 and 69.3.1 partially subsumed by NSR BACT.

TITLE V APPLICATION
Applicable Requirements Summary Checklist (FORM 1401-H1) - continued

RULE	RULE DESCRIPTION	Test Method or Rule Section	Monitoring, Records, Reports, Rule Section	Facility	T	W	Future Effective Date
K	Standards of Performance for Storage Vessels for Petroleum Liquids Constructed after June 11, 1973 and Prior to May 19, 1978		260.113				
Ka	Standards of Performance for Storage Vessels for Petroleum Liquids Constructed after May 18, 1978	260.113a	260.115a				
Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984	260.113b	260.115b 260.116b				

Subpart

L	Standards of Performance for Secondary Lead Smelters	260.123					
M	Standards of Performance for Secondary Brass and Bronze Ingot Production Plants	260.133					
O	Standards of Performance for Sewage Treatment Plants	260.154	260.153				
DD	Standards of Performance for Grain Elevators	260.303					
EE	Standards of Performance for Surface Coating Metal Furniture	260.313 260.316	260.314 260.315				
GG	Standards of Performance for Stationary Gas Turbines	260.335 260.433	260.334				
QQ	Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing	260.435	260.434				
RR	Standards of Performance for the Pressure Sensitive Tape and Label Surface Coating Operations	260.444 260.446	260.445 260.447				
SS	Standard of Performance for the Industrial Surface Coating Large Appliances	260.453 260.456	260.454 260.455				
TT	Standards of Performance for Metal Coil Surface Coating	260.463 260.466	260.464 260.465				
BBB	Standards of Performance for the Rubber Tire Manufacturing Industry	260.543 260.547	260.544 260.545 260.546				
FFF	Standards of Performance for Flexible Vinyl and Urethane Coating and Printing	260.583	260.584 260.585				
JJJ	Standards of Performance for Petroleum Dry Cleaners						

TITLE V APPLICATION
Applicable Requirements Summary Checklist (FORM 1401-H1) - continued

Subpart	Rule	Rule Description	Test Method or Rule Section	Monitoring, Reports, Rule Section	Facility	T	W	Future Effective Date
N,O,P	V	Glass Manufacturer; Primary Copper Smelter; Arsenic Trioxide and Metallic Arsenic Production Facilities. Pumps, Compressors, Pressure Relief Devices, Connections, Valves, Lines, Flanges, Product Accumulator Vessels, etc. in VHAP Service.						
F,G,H,I	L	MACT Standards (40 CFR 63) Amendment: Reopening, Averaging Issue						
	O	Coke Ovens						
	Q	Ethylene Oxide Sterilizers						
	R	Industrial Process Cooling Towers Gasoline Distribution Facilities						

Subpart	Rule	Rule Description	Test Method or Rule Section	Monitoring, Reports, Rule Section	Facility	T	W	Future Effective Date
T	X	Halogenated Solvent Cleaning Degreasing Secondary Lead Smelters						
	Y	Marine Tank Loading/Unloading						
	CC	Petroleum Refineries						
	DD	Off-Site Waste and Recovery Operations						
	EE	Magnetic Tape						
	GG	Aerospace (Coatings)						
	II	Shipbuilding for Ship Repair (Surface Coating)						
	JJ	Wood Furniture Industry (Coatings)						
	KK	Printing and Publishing						

**San Diego County Air Pollution Control District
10124 Old Grove Road San Diego CA 92131-1649
(858) 586-2600 FAX (858) 586-2601**

**TITLE V APPLICATION
Certification Statement (FORM 1401-I)**

Company Name	District Use Only
<u>Pio Pico Energy Center, LLC</u>	NEDS # _____
Facility Address: <u>7363 Calzada de la Fuente, San Diego, CA. 92154</u>	SITE ID # _____

Under penalty of perjury, identify the following: (Read each statement carefully and check each box for confirmation.)

- | | | |
|-------------------------------------|-------------------------------------|--|
| Applicable | Not
Applicable | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>Based on information and belief formed after reasonable inquiry, the source(s) identified in this application will continue to comply with the applicable requirement with which the source is in compliance. The applicable requirement(s) with which the source(s) is/are not in compliance is/are identified in Form 1401-L, Schedule of Compliance.</i> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>Based on information and belief formed after reasonable inquiry, the source(s) identified in this application will comply with the future-effective applicable requirement(s) on a timely basis.</i> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <i>Based on information and belief formed after reasonable inquiry, the source(s) identified in the Schedule of Compliance application form that is/are not in compliance with the applicable requirement(s), will comply in accordance with the attached compliance plan schedule.</i> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>Based on information and belief formed after reasonable inquiry, information on application forms, referenced documents, all accompanying reports, and other required certifications are true, accurate, and complete.</i> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>All fees required by Regulation III, Rule 40 have been paid.</i> |


Signature of Responsible Official

6/16/2017
Date

Greg Trewitt
Print Name of Responsible Official

(303) 623-4111
Telephone No. of Responsible Official

Sr. VP Operations and Technical Services
Title of Responsible Official

San Diego County Air Pollution Control District
10124 Old Grove Road San Diego CA 92131-1649
(858) 586-2600 FAX (858) 586-2601

TITLE V APPLICATION
Alternative Operating Scenario (FORM 1401-N)

Company Name Pio Pico Energy Center, LLC	District Use Only NEDS # _____ SITE ID # _____
Facility Address: 7363 Calzada de la Fuente, San Diego, CA. 92154	

SCENARIO WITH EMISSION CHANGES

Give a title, a brief description, and an emission change. Attach calculations and detailed descriptions of each scenario to this form, using one form for each scenario. **Please type or print legibly.**

Operating Scenario # 1

TITLE	Gas turbine replacement and repair
--------------	------------------------------------

DESCRIPTION	Repair and like-kind replacement of gas turbines
--------------------	--

EMISSION CHANGE	None - no emissions changes are proposed for this AOS
------------------------	---

Attach all necessary calculations, detailed descriptions, and proposed terms and conditions to this form.

See proposed permit condition language on next page.

ROUTINE MAINTENANCE, REPLACEMENT AND REPAIR (RMRR)

84. Turbine Replacement – This condition addresses the requirements for a turbine replacement with a like-kind unit. The turbine which is removed would be repaired, and placed in storage, for use at the next scheduled major over-haul.

The replacement turbine, upon installation and commencement of operations, shall comply at all times with all conditions on this permit and all applicable rules and regulations. The turbine replacement shall not result in either a net emission increase or project emission increase under NSR. (Rule 11, Rule 20.1, Rule 20.2, Rule 20.3)

85. Turbine Repair – This condition addresses the requirement where an existing turbine cannot be replaced by a like-kind unit, but rather must be repaired on-site through the overhaul and replacement of major turbine components.

The repaired turbine, upon completion of repairs and return to service, shall comply at all times with all conditions on this permit and all applicable rules and regulations. The turbine repair shall not result in either a net emission increase or project emission increase under NSR. (Rule 11, Rule 20.1, Rule 20.2, Rule 20.3)

86. Approved periods of testing, tuning, tuning and maintenance shall not exceed either 720 unit operating minutes (12 operating hours) per calendar day or 40 operating hours per calendar year for any of these purposes. Any period of operation where the emission controls are in full operation as required by this permit and as shown by DAS/CEMS records shall not be included in determination of these limits. [Rule 20.2(d)(1)]

87. In order to claim that a period of operation meets the requirements for an approved period of testing, tuning, tuning and maintenance, the owner or operator must maintain the following records for each period:

- a. Date(s) and time(s) of operation
- b. Purpose of operation
- c. Any applicable test procedure, regulation, or other records to demonstrate the need or purpose for the operation
- d. Technical justification that steady-state emission standards cannot be met during this operation. Acceptable technical justifications include: need to operate turbine for extended period of time at low load, need to operate turbine in transient modes that exceed the ability of the emission controls to maintain steady state emission levels, tuning of the system or emission controls that involves operation outside the normal acceptable operating ranges for the emission control system, and any other operating scenarios that have been approved by the District.

[Rule 20.2(d)(1)].

FIRST FUEL FIRE NOTICE

**San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131
(858)586-2600
FAX: (858) 586-2601**

Please complete the "APPLICANT USE ONLY" portion of this notice and fax or mail it to the APCD. The following information has been included based on your application information. Please note any corrections to this information.

COMPANY NAME (DBA): Pio Pico Energy Center, LLC
APPLICATION NUMBER: APCD2014-APP-003627
EQUIPMENT ADDRESS: Pio Pico Energy Center, LLC
7363 Calzada de la Fuente
Otay Mesa CA, 92154

TYPE OF EQUIPMENT: Turbine No. 1: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, serial number TBD, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NOx and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); and an oxidation catalyst.

APCD PROJECT ENGINEER: STEVEN MOORE TELEPHONE: (858) 586-2750

APPLICANT USE ONLY

DATE FIRST FUEL FIRE OCCURS: 08/06/2016

PERSON PROVIDING NOTIFICATION (Please Print): Steve Hill

SIGNATURE: 

DATE OF NOTIFICATION: 08/07/2016 TELEPHONE: 510.684.3671

APCD USE

I.D.#: APCD2010-SITE-00471

DATE RECEIVED:

FIRST FUEL FIRE NOTICE

**San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131
(858)586-2600
FAX: (858) 586-2601**

Please complete the "APPLICANT USE ONLY" portion of this notice and fax or mail it to the APCD. The following information has been included based on your application information. Please note any corrections to this information.

COMPANY NAME (DBA): Pio Pico Energy Center, LLC
APPLICATION NUMBER: APCD2014-APP-003627
EQUIPMENT ADDRESS: Pio Pico Energy Center, LLC
7363 Calzada de la Fuente
Otay Mesa CA, 92154

TYPE OF EQUIPMENT: Turbine No. 2: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, serial number TBD, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NOx and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); and an oxidation catalyst.

APCD PROJECT ENGINEER: STEVEN MOORE TELEPHONE: (858) 586-2750

APPLICANT USE ONLY

DATE FIRST FUEL FIRE OCCURS: 07/19/2016

PERSON PROVIDING NOTIFICATION (Please Print): Steve Hill

SIGNATURE: 

DATE OF NOTIFICATION: 07/25/2016 TELEPHONE: 510.684.3671

APCD USE

I.D.#: APCD2010-SITE-00471

DATE RECEIVED:

FIRST FUEL FIRE NOTICE

**San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131
(858)586-2600
FAX: (858) 586-2601**

Please complete the "APPLICANT USE ONLY" portion of this notice and fax or mail it to the APCD. The following information has been included based on your application information. Please note any corrections to this information.

COMPANY NAME (DBA): Pio Pico Energy Center, LLC
APPLICATION NUMBER: APCD2014-APP-003627
EQUIPMENT ADDRESS: Pio Pico Energy Center, LLC
7363 Calzada de la Fuente
Otay Mesa CA, 92154


TYPE OF EQUIPMENT: Turbine No. 3: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, serial number TBD, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NOx and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); and an oxidation catalyst.

APCD PROJECT ENGINEER: STEVEN MOORE TELEPHONE: (858) 586-2750

APPLICANT USE ONLY

DATE FIRST FUEL FIRE OCCURS: 07/02/2016

PERSON PROVIDING NOTIFICATION (Please Print): Steve Hill

SIGNATURE: 

DATE OF NOTIFICATION: 07/04/2016 TELEPHONE: 510.684.3671

APCD USE

I.D.#: APCD2010-SITE-00471

DATE RECEIVED:



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

Attachment B

Current SDAPCD Operating Permit (S/A)



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

Pio Pico Energy Center, LLC
Don Burkard
7363 Calzada de la Fuente
San Diego CA 92154

EQUIPMENT ADDRESS
Pio Pico Energy Center, LLC
Don Burkard
7363 Calzada de la Fuente
San Diego CA 92154

STARTUP AUTHORIZATION

After examination of your Application APCD2014-APP-003627 for an Air Pollution Control District (hereinafter referred to as "the District") Authority to Construct and Permit to Operate for equipment located at 7363 Calzada de la Fuente San Diego CA 92154 in San Diego County, the District has decided on the following actions:

This Startup Authorization is granted pursuant to Rule 21 of the Air Pollution Control District Rules and Regulations for equipment to consist of:

Turbine No. 1: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, serial number TBD, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NO_x, O₂, and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); an ammonia vaporization system, and an oxidation catalyst.

Turbine No. 2: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, serial number TBD, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NO_x, O₂, and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); an ammonia vaporization system, and an oxidation catalyst.

Turbine No. 3: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, serial number TBD, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NO_x, O₂, and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); an ammonia vaporization system, and an oxidation catalyst.

This Startup Authorization is issued with the following conditions:



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

1. This equipment shall be properly maintained and kept in good operating condition at all times, and, to the extent practicable, the Applicant shall maintain and operate the equipment and any associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. [Rule 21 and 40 CFR §60.11]
2. The Applicant shall operate the project in accordance with all data and specifications submitted with the application under which this license is issued and District Application No. APCD2010-APP-001251 as amended by Application Nos. APCD2011-APP-001540 and APCD2014-APP-003627. [Rule 14]
3. The Applicant shall provide access, facilities, utilities, and any necessary safety equipment, with the exception of personal protective equipment requiring individual fitting and specialized training, for source testing and inspection upon request of the Air Pollution Control District. [Rule 19]
4. The Applicant shall obtain any necessary District permits for all ancillary combustion equipment including emergency engines, prior to on-site delivery of the equipment. [Rule 10]
5. Prior to the initial startup date for any of the three combustion turbines, the Applicant shall surrender to the District Class A Emission Reduction Credits (ERCs) in an amount equivalent to 84.5 tons per year of oxides of nitrogen (NOx) to offset the net maximum allowable increase of 70.4 tons per year of NOx emissions for the three combustion turbines authorized to be constructed under this permit. [Rule 20.3(d)(8)]
6. A rolling 12-calendar-month period is one of a series of successive consecutive 12-calendar-month periods. The initial 12-month-calendar period of such a series shall begin on the first day of the month in which the applicable beginning date for that series occurs as specified in this permit. [Rule 20.3 (d)(3), Rule 20.3(d)(8) and Rule 21].
7. RESERVED.
8. The Applicant shall comply with all applicable provisions of 40 CFR Part 73, including requirements to acquire, hold and retire sulfur dioxide (SO₂) allowances. [40 CFR Part 73]
9. All records required by this permit shall be maintained on site for a minimum of five years and made available to the District upon request. [Rule 1421]

COMBUSTION TURBINE CONDITIONS

Definitions

10. Unless otherwise defined for purposes of a specific condition, for purposes of determining compliance with the emission limits of this permit, a shutdown period is the 11 minutes period preceding the moment at which fuel flow ceases. [Rule 20.3(d)(1)]
11. A startup period is the period of time that begins when fuel flows to the combustion turbine following a non-operational period. Unless otherwise defined for purposes of a specific condition, for purposes of determining compliance with the emission limits of this permit, the duration of a startup period shall not exceed 30 consecutive minutes. [Rule 20.3(d)(1)]
12. A non-operational period is any five-consecutive-minute period when fuel does not flow to the combustion turbine. [Rule 20.3(d)(1)]
13. The Continuous Emission Monitoring System Protocol (CEMS Protocol) is a document approved in writing by the District that describes the methodology and quality assurance and quality control procedures for monitoring, calculating, and recording stack emissions from the combustion turbine that is monitored by the CEMS. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, , 40 CFR Part 60 Appendix B and F, and 40 CFR Part 75]



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

14. For each combustion turbine, the commissioning period is the period of time commencing with the initial startup, also known as the first fire, of that turbine and ending after 112 hours of turbine operation, or the date the permittee notifies the District the commissioning period has ended. For purposes of this condition, the number of hours of turbine operation is defined as the total unit operating minutes during the commissioning period divided by 60 rounded to the nearest hundredth of an hour. [Rule 20.3(d)(1)]
15. For each combustion turbine, a unit operating day, hour, and minute mean the following:
 - a. A unit operating day means any calendar day in which the turbine combusts fuel.
 - b. A unit operating hour means any clock hour in which the turbine combusts fuel.
 - c. A unit operating minute means any clock minute in which the turbine combusts fuel.[Rule 21, 40 CFR Part 75, Rule 20.3(d)(1), 40 CFR Part 60 Subpart KKKK]
16. Tuning is defined as adjustments to the combustion or emission control system that involves operating the combustion turbine or emission control system in a manner such that the emissions control equipment may not be fully effective or operational. Only one gas turbine shall be tuned at any given time. Tuning events shall not exceed 720 unit operating minutes in a calendar day nor exceed 40 hours in a calendar year for each turbine. The District compliance division shall be notified at least 24 hours in advance of any tuning event. For purposes of this condition, the number of hours of tuning in a calendar year is defined as the total unit operating minutes of tuning during the calendar year divided by 60. [Rule 20.3(d)(1)]

General Conditions

17. The exhaust stacks for each combustion turbine shall be at least 100 feet in height above site base elevation and with an interior exhaust stack diameter of no more than 14.5 feet at the point of release unless it is demonstrated to the District that all requirements of District Rules 20.3 and 1200 are satisfied with a different stack configuration. [Rules 20.3(d)(2) and 1200]
18. The combustion turbines shall be fired on Public Utility Commission (PUC) quality natural gas. The Applicant shall maintain, on site, quarterly records of the natural gas sulfur content expressed in units of grains of sulfur compounds per 100 dscf of natural gas and hourly records of the higher heating value expressed in British thermal units per standard cubic foot (Btu/scf) of the natural gas. These records shall be provided to District personnel upon request. Sulfur content values or higher heating values provided by the local serving utility may be used with the advanced written approval of the District. Natural gas sulfur content records must be kept with a minimum reporting limit of 0.25 grains sulfur compounds per 100 dscf of natural gas. [Rule 20.3(d)(1)]
19. Unless otherwise specified in this permit, all continuous monitoring data shall be collected at least once every clock minute. [Rules 69.3, 69.3.1, and 20.3(d)(1)]

Emission Limits

20. For purposes of determining compliance with emission limits based on source testing, the average of three subtests shall be used. For purposes of determining compliance with emission limits based on a Continuous Emission Monitoring System (CEMS), data collected in accordance with the District approved CEMS Protocol shall be used and the averages for averaging periods specified herein shall be calculated as specified in the CEMS Protocol. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, 40 CFR Part 60 Appendix B and F, and 40 CFR Part 75]
21. For purposes of determining compliance with emission limits based on CEMS data, all CEMS calculations, averages, and aggregates shall be performed in accordance with the CEMS Protocol approved in writing by the District. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, 40 CFR Part 60 Appendix B and F, and 40 CFR Part 75]



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

22. For each emission limit expressed as pounds, pounds per hour, or parts per million by volume on a dry basis (ppmvd) based on a one-hour or less averaging period or compliance period, compliance shall be based on using data collected at least once every minute when compliance is based on CEMS data. [Rules 69.3, 69.3.1, and 20.3(d)(1)]
23. When a combustion turbine is combusting fuel (operating), the emission concentration of oxides of nitrogen (NO_x), calculated as nitrogen dioxide (NO₂), shall not exceed 2.5 ppmvd corrected to 15% oxygen averaged over a one-clock-hour period, except during commissioning, startup, and shutdown periods for that turbine. [Rule 20.3(d)(1)]
24. When a combustion turbine is operating, the emission concentration of carbon monoxide (CO) shall not exceed 4.0 ppmvd corrected to 15 % oxygen, averaged over a one-clock-hour period, except during commissioning, startup, and shutdown periods for that turbine. [Rule 20.3(d)(1)]
25. When a combustion turbine is operating, the volatile organic compound (VOC) concentration, calculated as methane, measured in the exhaust stack, shall not exceed 2.0 ppmvd corrected to 15% oxygen, averaged over a one-clock-hour period, except during commissioning, startup, and shutdown periods for that turbine. For purposes of determining compliance based on the CEMS, the District approved VOC/CO surrogate relationship and the CO CEMS data, averaged over a 1-clock-hour period shall be used. The VOC/CO surrogate relationship shall be verified and/or modified, if necessary, based on source testing. [Rule 20.3(d)(1)]
26. When a combustion turbine is operating, the ammonia concentration (ammonia slip), shall not exceed 5.0 ppmvd corrected to 15 % oxygen and averaged over a one-clock-hour period, except during commissioning, startup, and shutdown periods for that turbine. [Rule 1200]
27. When a combustion turbine is operating with post-combustion air pollution control equipment that controls oxides of nitrogen (NO_x) emissions, the emission concentration NO_x, calculated as nitrogen dioxide (NO₂), shall not exceed 13.9 ppmvd averaged over each one-clock-hour period and corrected to 15% oxygen, except for startup and shutdown periods for that turbine, as defined in Rule 69.3.1. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3.1. [Rule 69.3.1]
28. When a combustion turbine is operating without any post-combustion air pollution control equipment that controls oxides of nitrogen (NO_x) emissions, the emission concentration of NO_x calculated as nitrogen dioxide (NO₂) from each turbine shall not exceed 23.2 ppmvd averaged over each one-clock-hour period and corrected to 15% oxygen, except for startup and shutdown periods for that turbine, as defined in Rule 69.3.1. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3.1. [Rule 69.3.1]
29. When a combustion turbine is operating, the emission concentration of oxides of nitrogen (NO_x), calculated as nitrogen dioxide (NO₂) shall not exceed 42 ppmvd averaged over each one-clock-hour period and corrected to 15% oxygen, on a dry basis, except during startup and shutdown periods for that turbine, as defined in Rule 69.3. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3. [Rule 69.3]
30. For each rolling four unit operating hour period, average emission concentration of oxides of nitrogen (NO_x) for each turbine calculated as nitrogen dioxide (NO₂) in parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen or, alternatively, as elected by the Applicant, the average NO_x emission rate in pounds per megawatt-hour (lb/MWh) shall not exceed an average emission limit calculated in accordance with 40 CFR Section 60.4380(b)(3). The emission concentration and emission rate averages shall be calculated in accordance with 40 CFR Section 60.4380(b)(1). The average emission concentration limit and emission rate limit shall be based on an average of hourly emission limits over the four unit operating hour period including the operating hour and the three unit operating hours immediately preceding that hour. For any unit operating hour where multiple emission standards would apply based on load of the turbine, the applicable standard shall be the higher of the two limits. The hourly emission concentration limit and emission rate limit shall be as follows based on the load of the turbine over the four unit operating hour period:



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
 10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
 PHONE (858) 586-2600 FAX (858) 586-2601
 www.sdapcd.org

Sectors: 5, R
 Site Record ID: APCD2010-SITE-00471
 Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
 August 8, 2017

<u>Case</u>	<u>Emission Limit,</u>	
	<u>ppmvd at 15% O₂</u>	<u>lb/MWh</u>
i. All four hours at or above 75% Load	15	0.43
ii. All four hours below 75% Load	96	4.7
iii. Combination of hours	$(a \times 15 + b \times 96)/4$	$(a \times 0.43 + b \times 4.7)/4$

Where: a = the number of unit operating hours in the four hour period with all operation above 75% load and b = 4-a.

The averages shall exclude all clock hours occurring before the Initial Emission Source Test but shall include emissions during all other times that the equipment is operating including, but not limited to, emissions during startup and shutdown periods for that turbine. For each six-calendar-month period, emissions in excess of these limits and monitor downtime shall be identified in accordance with 40 CFR Sections 60.4350 and 60.4380(b)(2), except that Section 60.4350(c) shall not apply for identifying periods in excess of a NOx concentration limit. For the purposes of this condition, unit operating hour shall have the same meaning as defined in 40 CFR 60.4420. [40 CFR Part 60 Subpart KKKK]

31. The emissions of particulate matter less than or equal to 10 microns in diameter (PM₁₀) from the exhaust stack of each combustion turbine shall not exceed 5.0 pounds per hour for each combustion turbine. Compliance with this limit shall be demonstrated based upon source testing and calculated as the average of three subtests. [Rule 20.3(d)(1) and (d)(2)]
32. The discharge of particulate matter from the exhaust stack of each combustion turbine shall not exceed 0.10 grains per dry standard cubic foot (0.23 grams/dscm) corrected to 12% carbon dioxide. The District may require periodic testing to verify compliance with this standard. [Rule 53]
33. Visible emissions from the lube oil vents and the exhaust stack of each combustion turbine shall not exceed 20% opacity for more than three (3) minutes in any period of 60 consecutive minutes. [Rule 50]
34. Mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO₂; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits, except during commissioning, startup, and shutdown periods for that turbine. A one-clock-hour averaging period for these limits shall be used when compliance is determined using CEMS data.

<u>Pollutant</u>	<u>Emission Limit, lb/hour</u>
a. NOx	8.2
b. CO	8.0
c. VOC	2.3

[Rule 20.3(d)(2)]

35. Excluding any minutes that are coincident with a shutdown period, cumulative mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO₂; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits during each of that turbine's startup periods, except during that turbine's commissioning period.

<u>Pollutant</u>	<u>Emission Limit, lb/event</u>
a. NOx	22.5
b. CO	17.9
c. VOC	4.7

[Rule 20.3(d)(1)]



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
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www.sdapcd.org

Sectors: 5, R
 Site Record ID: APCD2010-SITE-00471
 Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
 August 8, 2017

36. Cumulative mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO₂; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits during each of that turbine's shutdown periods, except during that turbine's commissioning period.

<u>Pollutant</u>	<u>Emission Limit, lb/event</u>
a. NOx	6.0
b. CO	47.0
c. VOC	3.0

[Rule 20.3(d)(1)]

37. The total aggregate oxides of nitrogen (NOx) emissions from all combustion turbines combined shall not exceed 150 pounds per hour, calculated as nitrogen dioxide and measured over each one-clock-hour period. This emission limit shall apply during all times one or more turbines are operating, including, but not limited to, emissions during commissioning, startup, and shutdown periods. [Rule 20.3(d)(2)]

38. The carbon monoxide (CO) emissions from each combustion turbine shall not exceed 75 pounds per hour and total aggregate CO emissions from all combustion turbines combined shall not exceed 225 pounds per hour measured over each one-clock-hour period. This emission limit shall apply during all times that one or more turbines are operating, including, but not limited to emissions during commissioning, startup, and shutdown periods. [Rule 20.3(d)(2)(i)]

39. Beginning with the earlier of the initial startup dates for any combustion turbine, aggregate emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO₂); carbon monoxide (CO); volatile organic compounds (VOCs), calculated as methane; particulate matter less than or equal to 10 microns in diameter (PM₁₀); and oxides of sulfur (SOx), calculated as sulfur dioxide (SO₂), from the combustion turbines authorized to be constructed under this permit, except emissions from emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1), as it exists on the date the permit to operate for this equipment is approved, shall not exceed the following limits for each rolling 12-calendar-month period beginning with the 12-calendar-month period that begins with the month in which the earliest initial startup among the equipment authorized to be constructed under this permit occurs:

<u>Pollutant</u>	<u>Emission Limit, tons per year</u>
a. NOx	70.4
b. CO	96.4
c. VOC	19.4
d. PM ₁₀	35.8
e. SOx	4.1

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during commissioning, startup, and shutdown periods. All calculations performed to show compliance with these limits shall be performed according to a protocol approved in advance in writing by the District. [Rules 20.3(d)(2), 20.3(d)(3), 20.3(d)(5), 20.3(d)(8) and 21]

40. The wet surface air cooler (WSAC) shall be equipped with a mist eliminator designed to achieve a drift rate of 0.001% or less. In addition, the maximum total dissolved solids (TDS) concentration of the air-side recirculating cooling water used in the WSAC shall not exceed 5,600 ppm. The TDS concentration shall be verified through calendar quarterly testing of the water by a certified lab using an EPA approved method. In addition, beginning with the earlier of the initial startup dates for any combustion turbine, emissions of PM₁₀ from the WSAC shall not exceed 1.46 tons for each rolling 12-calendar-month period beginning with the 12-calendar-month period that begins with the month in which the earliest initial startup among the equipment authorized to be constructed under this permit occurs. For each calendar month, PM₁₀ emissions from the WSAC shall be calculated using a District approved protocol that is based on either the design maximum air-side recirculating cooling water flow to the WSAC or the measured total air-side recirculating water flow to the WSAC during the calendar month; the design maximum drift rate; the TDS concentration from the calendar quarterly measurement for the calendar quarter that contains the month; and the actual hours of operation of the WSAC fans during the calendar month.



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

Except for the TDS concentration, for which the Applicant shall maintain records not less frequently than a calendar quarterly basis, the applicant shall maintain records not less frequently than a calendar monthly basis of each variable parameter necessary to calculate the WSAC PM₁₀ emissions with the District approved protocol methodology including, but not limited to, the recirculating air-side cooling water flow rate and actual hours of operation of the WSAC fans, if applicable. [Rule 20.3(d)(1)]

41. For each calendar month and each rolling 12-calendar-month period, the Applicant shall maintain records, as applicable, on a calendar monthly basis, of mass emissions during each calendar month and rolling 12-calendar month period of NO_x, calculated as NO₂; CO; VOCs, calculated as methane; PM₁₀; and SO_x, calculated as SO₂, in tons, from each emission unit authorized to be constructed under this permit, except for emissions from emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1) as it exists on the date the permit to operate for this equipment is approved. These records shall be made available for inspection within 15 calendar days after the end of each calendar month. The recorded emissions shall be calculated in accordance with an emission calculation protocol approved by the District. Where applicable, this protocol may rely in whole or in part on the CEMS Protocol or other monitoring protocols required by this permit. [Rules 20.3(d)(3), 20.3(d)(8) and 21]
42. For each calendar month and each rolling 12-calendar-month period, the Applicant shall maintain records, as applicable, on a calendar monthly basis, of aggregate mass emissions of NO_x, calculated as NO₂; CO; VOCs, calculated as methane; PM₁₀; and SO_x, calculated as SO₂, in tons from all the emission units authorized to be constructed under this permit combined, except for emissions from emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1). These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Ammonia - SCR

43. The associated ammonia vaporizer system shall be operated and maintained in accordance with the manufacturer's instructions and shall be begin operating as soon as feasible before a turbine startup period begins and be fully operational at all times when a combustion turbine is operating. [Rules 20.3(d)(1) and 21]
44. When a combustion turbine is operating, ammonia shall be injected at all times provided that all of the following are satisfied:
 - a. The associated selective catalytic reduction (SCR) system catalyst inlet temperature is 570 degrees Fahrenheit (°F) or greater;
 - b. The associated ammonia vaporizer system air heater exit temperature has attained 300 °F or greater after the beginning of the startup period and is greater than 250 °F during continuous operations;
 - c. The associated ammonia vaporizer system ammonia-air mixing header exit temperature has attained 275 °F or greater after the beginning of the startup period and is greater than 215 °F during continuous operations.

For purposes of this condition, the SCR inlet temperature shall be determined as the smallest of the temperatures measured by the SCR inlet temperature monitors including only those monitors that are fully operational and measuring temperature within their specified accuracy. [Rules 20.3(d)(1) and 21]

45. Continuous monitors shall be installed on each SCR system and associated ammonia vaporizer system prior to their initial operation to monitor or calculate, as applicable, and record each unit operating minute the ammonia solution injection rate in pounds per hour the SCR inlet temperature at three points at the inlet to the SCR in degrees Fahrenheit (°F), the ammonia vaporizer system air heater exit temperature in °F, and ammonia-air mixing header exit exit temperature in °F. The monitors shall be installed, calibrated, maintained and operated in accordance with a District approved protocol, which may be part of the CEMS Protocol. If the District has not approved any protocol the monitors shall be installed, calibrated, maintained, and operated in accordance with the manufacturer's instructions until the date that a District approved protocol is in effect. The monitors shall be in full operation at all times when the turbine is in operation. [Rules 20.3(d)(1)]



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

46. Except during periods when the ammonia injection system is being tuned or one or more ammonia injection systems is in manual control for compliance with applicable permit conditions, the automatic ammonia injection system serving each SCR system shall be in operation in accordance with manufacturer's specifications at all times when ammonia is being injected into the SCR system. Manufacturer specifications shall be maintained on site and made available to District personnel upon request. [Rules 20.3(d)(1) and 21]
47. The concentration of ammonia solution used in the ammonia injection system shall be less than 20% ammonia by weight. Records of ammonia solution concentration shall be maintained on site and made available to District personnel upon request. [Rules 14 and 21]

TESTING

48. All source test or other tests required by this permit shall be performed by the District or an independent contractor and witnessed and approved by the District. Unless otherwise specified in this permit or authorized in writing by the District, if testing will be performed by an independent contractor and witnessed by the District, a proposed test protocol shall be submitted to the District for written approval at least 45 calendar days prior to source testing. Additionally, the District shall be notified a minimum of 30 calendar days prior to the test so that observers may be present unless otherwise authorized in writing by the District. [Rules 20.3(d)(1) and 1200 and 40 CFR Part 60 Subpart KKKK and 40 CFR §60.8]
49. Unless otherwise specified in this permit or authorized in writing by the District, within 45 calendar days after completion of a source test or Relative Accuracy Test Audit (RATA) performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rules 20.3(d)(1) and 1200 and 40 CFR Part 60 Subpart KKKK, 40 CFR §60.8, and 40 CFR Part 75]
50. The exhaust stacks for each combustion turbine shall be equipped with source test ports and platforms to allow for the measurement and collection of stack gas samples consistent with all approved test protocols. The ports and platforms shall be constructed in accordance with District Method 3A, Figure 2, and approved by the District. [Rule 20]
51. Not later than 60 calendar days after completion of the commissioning period for each combustion turbine, an Initial Emissions Source Test shall be conducted on that turbine to demonstrate compliance with the NO_x, CO, VOC, PM₁₀, and ammonia emission standards of this permit. The source test protocol shall comply with all of the following requirements:
- Measurements of NO_x and CO concentrations and emissions and oxygen (O₂) concentration shall be conducted in accordance with U.S. Environmental Protection Agency (EPA) methods 7E, 10, and 3A, respectively, and District source test Method 100, or alternative methods approved by the District and EPA.
 - Measurement of VOC concentrations and emissions, except for formaldehyde, shall be conducted in accordance with EPA Method 18, or an alternative method approved by the District and EPA.
 - Measurement of formaldehyde concentrations and emissions shall be conducted in accordance with EPA Method 316 or 323, as specified by the District, or an alternative method approved by the District and EPA.
 - The total VOC concentration and emissions shall be the sum of the VOC concentration and emissions measured as specified in Subsection b of this condition and the formaldehyde concentration and emissions measured by Subsection c of this condition.
 - Measurements of ammonia concentrations shall be conducted in accordance with Bay Area Air Quality Management District Method ST-1B or an alternative method approved by the District and EPA.
 - Measurements of PM₁₀ emissions shall be conducted in accordance with EPA Method 5 and 202 or an alternative method approved by the District and EPA. For purposes of this permit, total particulate matter measured using EPA Method 5 and 202 shall be considered to be PM₁₀.
 - Source testing shall be performed at the normal load level, as specified in 40 CFR Part 75 Appendix A Section 6.5.2.1 (d), provided it is not less than 80% of the combustion turbine's rated load unless it is demonstrated to the satisfaction of the District that the combustion turbine cannot operate under these conditions. If the



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
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Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

demonstration is accepted, then emissions source testing shall be performed at the highest achievable continuous power level. The District may specify additional testing at different load levels or operational conditions to ensure compliance with the emission and concentration limits of this permit and District Rules and Regulations.

- h. Measurements of particulate matter emissions shall be conducted in accordance with SDAPCD Method 5 or an alternative method approved by the District and EPA.
- i. Measurements of opacity shall be conducted in accordance with EPA Method 9 or an alternative method approved by the District and EPA.
- j. Unless otherwise authorized in writing by the District, testing for NO_x, CO, VOC, PM₁₀, and ammonia concentrations and emissions, as applicable, shall be conducted concurrently with the NO_x and CO continuous emission measurement system (CEMS) Relative Accuracy Test Audit (RATA).

[Rules 20.3(d)(1) and 1200]

52. A renewal source test and a NO_x, O₂, and CO Relative Accuracy Test Audit (RATA) shall be periodically conducted on each combustion turbine to demonstrate compliance with the NO_x, CO, VOC, PM₁₀ and ammonia emission standards of this permit and applicable relative accuracy requirements for the CEMS systems using District approved methods. The renewal source test and the NO_x, O₂, and CO RATAs shall be conducted in accordance with the applicable RATA frequency requirements of 40 CFR75, Appendix B, Sections 2.3.1 and 2.3.3. The renewal source test shall be conducted in accordance a source test protocol complying with all of the following requirements:

- a. Measurements of NO_x and CO concentrations and emissions and oxygen (O₂) concentration shall be conducted in accordance with U.S. Environmental Protection Agency (EPA) methods 7E, 10, and 3A, respectively, and District source test Method 100, or alternative methods approved by the District and EPA.
- b. Measurement of VOC concentrations and emissions, except for formaldehyde, shall be conducted in accordance with EPA Method 18, or an alternative method approved by the District and EPA.
- c. Measurement of formaldehyde concentrations and emissions shall be conducted in accordance with EPA Method 316 or 323, as specified by the District, or an alternative method approved by the District and EPA.
- d. The total VOC concentration and emissions shall be the sum of the VOC concentration and emissions measured as specified in Subsection b of this condition and the formaldehyde concentration and emissions measured by Subsection c of this condition.
- e. Measurements of ammonia concentrations shall be conducted in accordance with Bay Area Air Quality Management District Method ST-1B or an alternative method approved by the District and EPA.
- f. Measurements of PM₁₀ emissions shall be conducted in accordance with EPA Method 5 and 202 or an alternative method approved by the District and EPA. For purposes of this permit, total particulate matter measured using EPA Method 5 and 202 shall be considered to be PM₁₀.
- g. Source testing shall be performed at the normal load level, as specified in 40 CFR Part 75 Appendix A Section 6.5.2.1 (d), provided it is not less than 80% of the combustion turbine's rated load unless it is demonstrated to the satisfaction of the District that the combustion turbine cannot operate under these conditions. If the demonstration is accepted, then emissions source testing shall be performed at the highest achievable continuous power level. The District may specify additional testing at different load levels or operational conditions to ensure compliance with the emission and concentration limits of this permit and District Rules and Regulations.
- h. Measurements of particulate matter emissions shall be conducted in accordance with SDAPCD Method 5 or an alternative method approved by the District and EPA.



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

- i. Unless otherwise authorized in writing by the District, testing for NO_x, CO, VOC, PM₁₀, and ammonia concentrations and emissions, as applicable, shall be conducted concurrently with the NO_x and CO continuous emission measurement system (CEMS) Relative Accuracy Test Audit (RATA).

[Rules 69.3, 69.3.1, 1200, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

53. Relative Accuracy Test Audits (RATAs) and all other required certification tests shall be performed and completed on the CEMS for NO_x and O₂ in accordance with applicable provisions of 40 CFR Part 75 Appendix A and B and 40 CFR §60.4345 and, for the purposes of determining compliance with 40 CFR Part 60 Subpart KKKK during the initial source test, 40 CFR §60.4405. Except for RATA frequency, RATAs and all other required certification tests shall be performed on the CEMS for CO and NO_x concentration corrected to 15% oxygen, O₂ concentration, and NO_x and CO mass emission rates in accordance with the applicable provisions of 40 CFR Part 60 Appendix B and F. All RATAs shall be performed simultaneously. [Rule 21, Rule 20.3 (d)(1), 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

54. Not later than 60 calendar days after completion of the commissioning period for each combustion turbine, an initial emission source test for toxic air contaminants shall be conducted on that turbine to determine the emissions of toxic air contaminants from the combustion turbine. At a minimum the following compounds shall be tested for, and emissions, if any, quantified:

- a. Acetaldehyde
- b. Acrolein
- c. Benzene
- d. Formaldehyde
- e. Toluene
- f. Xylenes

This list of compounds may be adjusted by the District based on source test results to ensure compliance with District Rule 1200 and the conditions of this permit is demonstrated. The District may require one or more or additional compounds to be quantified through source testing as needed to ensure compliance with Rule 1200 and the conditions of this permit. Within 60 calendar days after completion of a source test performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rule 1200]

55. The District may require one or more of the following compounds, or additional compounds, to be quantified through source testing periodically to ensure compliance with Rule 1200 and the conditions of this permit:

- a. Acetaldehyde
- b. Acrolein
- c. Benzene
- d. Formaldehyde
- e. Toluene
- f. Xylenes

If the District requires the Applicant to perform this source testing, the District shall request the testing in writing a reasonable period of time prior to the testing date. [Rule 1200 and California H&S Code §41510]

56. The higher heating value of the combustion turbine fuel shall be measured by ASTM D1826-94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, or ASTM D1945-96, Standard



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
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Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

Method for Analysis of Natural Gas by Gas Chromatography, in conjunction with ASTM D3588-98, Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, or an alternative test method approved by the District and EPA. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

57. The sulfur content of the combustion turbine fuel shall be sampled not less than once each calendar quarter in accordance with a protocol approved by the District and measured with ASTM D1072-90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases; ASTM D3246-05, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry; ASTM D5504-01, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence; ASTM D4468-85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry; ASTM D6228-98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection; or ASTM D6667-04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence or an alternative test method approved by the District and EPA. Sulfur content information provided by the local serving utility may be used to satisfy this condition with the advanced written approval of the District. [Rule 20.3(d)(1), Rule 21, and 40 CFR Part 75]

CONTINUOUS MONITORING

58. The Applicant shall comply with the applicable continuous emission monitoring requirements of 40 CFR Part 75 and 40 CFR Part 60. [40 CFR Part 75 and 40 CFR Part 60]

59. A continuous emission monitoring system (CEMS) shall be installed on each combustion turbine and properly maintained and calibrated to measure, calculate, and record the following, in accordance with the District approved CEMS Protocol:

- a. Clock-hourly average concentration of oxides of nitrogen (NOx) in parts per million by volume on a dry basis (ppmvd), both uncorrected and corrected to 15% oxygen;
- b. Clock-hourly average concentration of carbon monoxide (CO) in parts per million by volume on a dry basis (ppmvd), both uncorrected and corrected to 15% oxygen;
- c. Percent oxygen (O₂) in the exhaust gas for each unit operating minute;
- d. Clock-hourly mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in pounds;
- e. Cumulative mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in each startup and shutdown period, in pounds;
- f. Calendar daily mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in pounds;
- g. Calendar monthly mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in pounds;
- h. Rolling four unit operating hour average concentration of oxides of nitrogen (NOx) corrected to 15% oxygen, in parts per million by volume dry on a dry basis (ppmvd) corrected to 15% oxygen;
- i. Rolling four unit operating hour average oxides of nitrogen (NOx) emission rate, calculated as NO₂, in pounds per megawatt-hour (MWh);
- j. Calendar quarter, calendar year, and rolling 12-calendar-month period mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in tons;
- k. Cumulative mass emissions of carbon monoxide (CO) in each startup and shutdown period, in pounds;
- l. Clock-hourly mass emissions of carbon monoxide (CO), in pounds;
- m. Calendar-daily mass emission of carbon monoxide (CO), in pounds;
- n. Calendar monthly mass emission of carbon monoxide (CO), in pounds;
- o. Rolling 12-calendar-month period mass emission of carbon monoxide (CO), in tons;
- p. Average concentration of oxides of nitrogen (NOx) and carbon monoxide (CO) in parts per million by volume on a dry basis (ppmvd), both uncorrected and corrected to 15% oxygen during each unit operating minute; and
- q. Average emission rate in pounds per hour of oxides of nitrogen (NOx), calculated as NO₂, and carbon monoxide (CO) during each unit operating minute.

[Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 FAX (858) 586-2601
www.sdapcd.org

Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

60. RESERVED.

61. No later than the earlier of 90 unit operating days or 180 calendar days after each combustion turbine commences commercial operation, a Relative Accuracy Test Audit (RATA) and other required certification tests shall be performed and completed on that turbine's NOx CEMS in accordance with 40 CFR Part 75 Appendix A and on the CO CEMS in accordance with 40 CFR Part 60 Appendix B. The RATAs shall demonstrate that the NOx and CO CEMS comply with the applicable relative accuracy requirements. At least 60 calendar days prior to the test date, the Applicant shall submit a test protocol to the District for written approval. Additionally, the District and U.S. EPA Region 9 shall be notified a minimum of 45 calendar days prior to the test so that observers may be present. Within 45 calendar days of completion of this test, a written test report shall be submitted to the District for approval. For purposes of this condition, commences commercial operation is defined as the first instance when power is sold to the electrical grid. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

62. RESERVED.

63. The oxides of nitrogen (NOx) and oxygen (O₂) components of the CEMS shall be certified and maintained in accordance with applicable federal regulations including the requirements of Sections 75.10 and 75.12 of Title 40, Code of Federal Regulations Part 75 (40 CFR 75), the Performance Specifications of Appendix A of 40 CFR Part 75, the Quality Assurance procedures of Appendix B of 40 CFR Part 75 and the CEMS Protocol approved by the District. Except for the frequency of Relative Accuracy Test Audits, the carbon monoxide (CO) components of the CEMS shall be certified and maintained in accordance with 40 CFR Part 60, Appendices B and F, unless otherwise specified in this permit or the CEMS Protocol approved by the District, and the CEMS Protocol approved by the District. If the District has not approved any CEMS Protocol for this equipment, the NOx, O₂, and CO components of the CEMS shall be certified and maintained in accordance with the CEMS Protocol submitted to the District for approval and the applicable federal requirements until the date that a District approved protocol is in effect. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

64. The CEMS shall be in operation in accordance with the District approved CEMS Protocol at all times when the turbine is in operation. A copy of the District approved CEMS Protocol shall be maintained on site and made available to District personnel upon request. If the District has not approved any CEMS Protocol for this equipment, the NOx, O₂, and CO components of the CEMS shall operate in accordance with the CEMS Protocol submitted to the District for approval and applicable federal requirements until the date that a District approved protocol is in effect. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

65. When the CEMS is not recording data and the combustion turbine is operating, hourly NOx emissions for purposes of calendar year and rolling 12-calendar-month period emission calculations shall be determined in accordance with 40 CFR 75 Subpart C. Additionally, hourly CO emissions for rolling 12-calendar-month period emission calculations shall be determined using CO emission factors to be determined from source test emission factors, recorded CEMS data, and fuel consumption data, in terms of pounds per hour of CO for the gas turbine. Emission calculations used to determine hourly emission rates shall be reviewed and approved by the District, in writing, before the hourly emission rates are incorporated into the CEMS emission data. [Rules 20.3(d)(3) and 21 and 40 CFR Part 75]

66. Any violation of any emission standard as indicated by the CEMS shall be reported to the District's compliance division within 96 hours after such occurrence. [Rules 20.3(d)(1) and 21]

67. The CEMS shall be maintained and operated, and reports submitted, in accordance with the requirements of rule 19.2 Sections (d), (e), (f)(1), (f)(2), (f)(3), (f)(4), and (f)(5), and the CEMS Protocol approved by the District. [Rules 20.3(d)(1) and 21]

68. Except for changes that are specified in the initial approved CEMS Protocol or a subsequent revision to that protocol that is approved in advance, in writing, by the District, the District shall be notified in writing at least thirty (30) calendar days prior to any planned changes made in the CEMS or Data Acquisition and Handling System (DAHS), including, but not limited to, the programmable logic controller, software which affects the value of data displayed on the CEMS/DAHS monitors with



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PHONE (858) 586-2600 FAX (858) 586-2601
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Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

respect to the parameters measured by their respective sensing devices and any planned changes to the software that controls the ammonia flow to the SCR. Unplanned or emergency changes shall be reported within 96 hours. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

69. RESERVED.

70. Fuel flowmeters shall be installed and maintained to measure the fuel flow rate, corrected for temperature and pressure, to each combustion turbine. Correction factors and constants shall be maintained on site and made available to the District upon request. The fuel flowmeters shall meet the applicable quality assurance requirements of 40 CFR Part 75, Appendix D, Section 2.1.6. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

71. Each combustion turbine shall be equipped with continuous monitors to measure, calculate, and record unit operating days, hours, and minutes and the following operational characteristics:

- a. Date and time;
- b. Natural gas flow rate to the combustion turbine during each unit operating minute, in standard cubic feet per minute;
- c. Total heat input to the combustion turbine based the fuels higher heating value during each unit operating minute, in million British thermal units per hour (MMBtu/hr);
- d. Higher heating value of the fuel on an hourly basis, in British thermal units per standard cubic foot (Btu/scf);
- e. Gross electrical power output during each unit operating minute in megawatts (MW); and
- f. Water injection rate in gallons per minute (gpm) or pounds per hour (lb/hr).

The values of these operational characteristics shall be recorded at least once each unit operating minute. The monitors shall be installed, calibrated, maintained, and operated in accordance with a turbine operation monitoring protocol, which may be part of the CEMS Protocol and which shall include any relevant calculation methodologies, that is approved, in advance, in writing, by the District. If the District has not approved a turbine monitoring protocol, separately or as part of the CEMS Protocol, the monitors shall be installed, calibrated, maintained, and operated in accordance with the manufacturer's instructions until the date that a District approved protocol is in effect. The monitors shall be in full operation at all times when the combustion turbine is in operation. Calibration records for the continuous monitors shall be maintained on site and made available to the District upon request. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

72. RESERVED.

73. Operating logs or Data Acquisition and Handling System (DAHS) records shall be maintained to record the beginning and end times and durations of all startup, shutdown, and tuning periods to the nearest minute, quantity of fuel used in each clock minute, clock hour, calendar month, and 12-calendar-month period in standard cubic feet; hours of operation each day; and hours of operation during each calendar year. For purposes of this condition, the hours of turbine operation is defined as the total minutes the turbine is combusting fuel during the calendar year divided by 60 rounded to the nearest hundredth of an hour. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

COMMISSIONING

74. Before the end of the commissioning period for each combustion turbine, the Applicant shall install post-combustion air pollution control equipment on that turbine to minimize NOx and CO emissions. Once installed, the post-combustion air pollution control equipment shall be maintained in good condition and shall be in full operation at all times when the turbine is combusting fuel and the air pollution control equipment is at or above its minimum operating temperature. [Rule 20.3(d)(1)]

75. Within thirty calendar days after the end of the commissioning period for each combustion turbine, the Applicant shall submit a written report to the District. This report shall include, at a minimum, the date the commissioning period started



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Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

and ended, the date and times of all startup and shutdown periods, the emissions of NOx and CO during startup and shutdown periods, and the emissions of NOx and CO during other periods. This report shall also detail any turbine or emission control equipment malfunction, upset, repairs, maintenance, modifications, or replacements affecting emissions of air contaminants that occurred during the commissioning period. All of the following continuous monitoring information shall be reported for each minute and, except for cumulative mass emissions during startup and shutdown periods, averaged over each hour of operation:

- a. Concentration of oxides of nitrogen (NOx) both uncorrected and corrected to 15% oxygen, in parts per million by volume on a dry basis (ppmvd);
- b. Concentration of carbon monoxide (CO) both uncorrected and corrected to 15% oxygen, in parts per million by volume on a dry basis (ppmvd);
- c. Percent oxygen (O₂) in the exhaust gas;
- d. Mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in pounds;
- e. Cumulative mass emissions of oxides of nitrogen (NOx), calculated as NO₂, in each startup and shutdown period, in pounds;
- f. Cumulative mass emissions of carbon monoxide (CO) in each startup and shutdown period, in pounds
- g. Mass emissions of carbon monoxide (CO), in pounds;
- h. Total heat input to the combustion turbine based on the fuel's higher heating value, in million British thermal units per hour (MMBtu/hr);
- i. Higher heating value of the fuel on an hourly basis, in British thermal units per standard cubic foot (Btu/scf);
- j. Gross electrical power output of the turbine, in megawatts (MW) for each hour; and
- k. SCR outlet temperature, in degrees Fahrenheit;
- l. Water injection rate in gallons per minute (gpm) or pounds per hour (lb/hr); and
- m. Ammonia injection rate in pounds per hour (lb/hr).

The hourly average information shall be submitted in writing and in an electronic format approved by the District. The minute-by-minute information shall be submitted in an electronic format approved by the District. [Rules 69.3, 69.3.1, 20.3(d)(1) and 20.3(d)(2)]

76. For each combustion turbine, the Applicant shall submit the following notifications to the District and U. S. EPA, Region 9:
- a. A notification in accordance with 40 CFR Section 60.7(a)(1) delivered or postmarked not later than 30 calendar days after construction has commenced;
 - b. A notification in accordance with 40 CFR Section 60.7(a)(3) delivered or postmarked within 15 calendar days after initial startup; and
 - c. An Initial Notification in accordance with 40 CFR Section 63.6145(c) and 40 CFR Section 63.9(b)(2) submitted no later than 120 calendar days after the initial startup of the turbine.

In addition, the Applicant shall notify the District when: (1) construction is complete by submitting a Construction Completion Notice before operating any unit that is the subject of this permit, (2) each combustion turbine first combusts fuel by submitting a First Fuel Fire Notice within five calendar days of the initial operation of the unit, and (3) each combustion turbine first generates electrical power that is sold by providing written notice within 5 days of this event. [Rules 24 and 21 and 40 CFR Part 75, 40 CFR Part 60 Subpart KKKK, 40 CFR Part §60.7, 40 CFR Part 63 Subpart YYYY, and 40 CFR Part §63.9]

REPORTING

77. The Applicant shall file semiannual reports in accordance with 40 CFR §60.4375. [40 CFR Part 60 Subpart KKKK]
78. Each semiannual report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Each such semiannual compliance report shall be postmarked or delivered no later than January 30 or July 30, whichever date is the first date following the end of the semiannual reporting period. [40 CFR Part 60 Subpart KKKK and Rule 21]



COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
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Sectors: 5, R
 Site Record ID: APCD2010-SITE-00471
 Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
 August 8, 2017

79. All semiannual compliance reports shall be submitted to the District Compliance Division [40 CFR §60.7]

ADDITIONAL PROJECT AMMENDMENT PERMIT CONDITIONS

GENERAL CONDITIONS

80. The equipment authorized to be constructed under this permit is described in Application No. APCD2010-APP-001251 as amended by Application Nos. APCD2011-APP-001540 and APCD2014-APP-003627.

COMBUSTION TURBINE CONDITIONS

Definitions

81. For the purposes of this permit, initial startup shall be defined for each combustion turbine as the first time that the combustion turbine combusts fuel on-site. [Rule 20.3]

Emission Limits

82. The emissions of particulate matter less than or equal to 10 microns in diameter (PM₁₀) from the exhaust stacks of the combustion turbines shall not exceed 3.5 pounds per hour per turbine, calculated as the arithmetic average of the source test results from the six most recent sets of valid source tests performed on the three turbines. For the purpose of this condition, a valid source test is a source test for which the results have been approved by the District, and that included at least three subtests in the calculation of average emission rate. [Rule 20.3(d)(1) and (d)(2)]

TESTING

83. All testing conducted to measure concentrations or emissions of volatile organic compounds (VOCs) shall include measurement of formaldehyde and the result shall be added to the result determined for other VOC concentrations or emissions, as applicable. Measurement of VOC emissions shall be conducted in accordance with EPA Method 18, or alternative methods approved by the District and EPA. Measurement of emissions of formaldehyde shall be conducted in accordance with EPA Method 316 or 323, or an alternative method approved by the District and EPA.

This authorization is for temporary operation of the above-specified equipment. This temporary Permit to Operate will remain in effect, unless withdrawn or modified by the District or a Permit to Operate is granted or denied.

This Startup Authorization shall be posted on or within 25 feet of the described equipment or maintained readily available at all times on the operating premises.

This Startup Authorization does not relieve the holder from obtaining permits or authorizations, which may be required by other governmental agencies. This Startup Authorization is not an authorization to exceed any applicable emission standard established by this District or any other governmental agency. This authorization is subject to cancellation if any emission standard or condition is violated.

Within 30 days after receipt of this Startup Authorization, the applicant may petition the Hearing Board for a hearing on any conditions imposed herein in accordance with Rule 25.

This Startup Authorization will expire on August 8, 2017, unless an extension is granted in writing.

If you have any questions regarding this action, please contact me at (858) 586-2750 or via email at steve.moore@sdcounty.ca.gov.



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Sectors: 5, R
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2014-APP-003627

APCD2014-APP-003627

Startup Authorization Expires:
August 8, 2017

Steve Moore

Senior Engineer

CC: Compliance Division



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

Attachment C

Revised Acid Rain Application

Permit Requirements

STEP 3

Read the standard requirements.

- (1) The designated representative of each affected source and each affected unit at the source shall:
 - (i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and
 - (ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;
- (2) The owners and operators of each affected source and each affected unit at the source shall:
 - (i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and
 - (ii) Have an Acid Rain Permit.

Monitoring Requirements

- (1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75.
- (2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the source or unit, as appropriate, with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
- (3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements

- (1) The owners and operators of each source and each affected unit at the source shall:
 - (i) Hold allowances, as of the allowance transfer deadline, in the source's compliance account (after deductions under 40 CFR 73.34(c)), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the affected units at the source; and
 - (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
- (2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
- (3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
 - (i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or
 - (ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).

Sulfur Dioxide Requirements, Cont'd.**STEP 3, Cont'd.**

- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements

The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements

- (1) The designated representative of an affected source that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
- (2) The owners and operators of an affected source that has excess emissions in any calendar year shall:
- (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
 - (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements

- (1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
- (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission

of a new certificate of representation changing the designated representative;

STEP 3, Cont'd.

Recordkeeping and Reporting Requirements, Cont'd.

- (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
 - (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
 - (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
- (2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability

- (1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
- (2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
- (3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
- (4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
- (5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
- (6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit.
- (7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities

No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

- (1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with

Pio Pico Energy Center

Facility (Source) Name (from STEP 1)

any other provision of the Act, including the provisions of title I of the Act relating

STEP 3, Cont'd.

Effect on Other Authorities, Cont'd.

to applicable National Ambient Air Quality Standards or State Implementation Plans;

(2) Limiting the number of allowances a source can hold; *provided*, that the number of allowances held by the source shall not affect the source's obligation to comply with any other provisions of the Act;

(3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;

(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,


(5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

STEP 4

Read the certification statement, sign, and date.

Certification

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name Greg Trewitt		
Signature 	Digitally signed by Greg Trewitt DN: cn=Greg Trewitt, o, ou, email=trewitt@southwestgen.com, c=US Date: 2017.06.28 07:31:39 -06'00'	Date 6/16/2017



Certificate of Representation

For more information, see instructions and 40 CFR 63 subpart UUUUU, 72.24, 96.113, 96.213, 96.313, 97.113, 97.213, 97.313, 97.416, 97.516, 97.616, 97.716, or a comparable state regulation, as applicable.

This submission is: New Revised (revised submissions must be complete; see instructions)

STEP 1
Provide information for the plant.

Plant Name Pio Pico Energy Center, LLC		State CA	Plant Code 57555
County Name San Diego			
Latitude 32.573889		Longitude -116.917777	

STEP 2
Enter requested information for the designated representative.

Name Greg Trewitt		Title Sr. VP Operations and Technical Services	
Company Name Southwest Generation			
Mailing Address 600 Seventeenth St., Suite 2400S		City Denver	State CO Zip Code 80202
Phone Number 303-623-4111		Fax Number 303-825-3341	
E-mail Address trewittg@southwestgen.com			

STEP 3
Enter requested information for the alternate designated representative.

Name		Title	
Company Name			
Mailing Address		City	State Zip Code
Phone Number		Fax Number	
E-mail Address			

UNIT INFORMATION

STEP 4: Complete a separate page 2 for each unit located at the plant identified in STEP 1 (i.e., for each boiler, simple cycle combustion turbine, or combined cycle combustion turbine) Do not list duct burners. Indicate each program to which the unit is subject, and enter all other unit-specific information. See instructions for more details.

Applicable Program(s): Acid Rain CAIR NO_x Annual CAIR NO_x Ozone Season CAIR SO₂ TR NO_x Annual TR NO_x Ozone Season TR SO₂ Annual CAIR NO_x Ozone Season MATS

Unit ID#	Unit Type	Source Category	Generator ID Number (Maximum 8 characters)	Acid Rain Nameplate Capacity (MWe)	CAIR/ MATS/Transport Rule Nameplate Capacity (MWe)
CT1	CT	Electric Utility	CTG1		
Unit ID#	Unit Type	NAICS Code			
Date unit began (or will begin) serving any generator producing electricity for sale (including test generation) (mm/dd/yyyy):			Is this unit located in Indian Country?		
8/6/2016			Check One: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Check One: Actual <input type="checkbox"/> Projected <input checked="" type="checkbox"/>			Has this unit ever operated at another location?		
Company Name:			Check One: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Pto Pico Energy Center, LLC			<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator		
Company Name:			<input type="checkbox"/> Owner <input type="checkbox"/> Operator		
Company Name:			<input type="checkbox"/> Owner <input type="checkbox"/> Operator		
Company Name:			<input type="checkbox"/> Owner <input type="checkbox"/> Operator		
Company Name:			<input type="checkbox"/> Owner <input type="checkbox"/> Operator		
Company Name:			<input type="checkbox"/> Owner <input type="checkbox"/> Operator		

UNIT INFORMATION

STEP 4: Complete a separate page 2 for each unit located at the plant identified in STEP 1 (i.e., for each boiler, simple cycle combustion turbine, or combined cycle combustion turbine) Do not list duct burners. Indicate each program to which the unit is subject, and enter all other unit-specific information. See instructions for more details.

Applicable Program(s): Acid Rain CAIR NO_x Annual CAIR SO₂ CAIR NO_x Ozone Season MATS TR NO_x Annual TR NO_x Ozone Season TR SO₂ Annual

Unit ID#	Unit Type	Source Category	Generator ID Number (Maximum 8 characters)	Acid Rain Nameplate Capacity (MWe)	CAIR/ MATS/Transport Rule Nameplate Capacity (MWe)
CT2	CT	Electric Utility	CTG2		
		22112			
		NAICS Code			
Date unit began (or will begin) serving any generator producing electricity for sale (including test generation) (mm/dd/yyyy):		Is this unit located in Indian Country?		Has this unit ever operated at another location?	
7/22/2016		Check One: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Check One: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Company Name: Pio Pico Energy Center, LLC				<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	

UNIT INFORMATION

STEP 4: Complete a separate page 2 for each unit located at the plant identified in STEP 1 (i.e., for each boiler, simple cycle combustion turbine, or combined cycle combustion turbine) Do not list duct burners. Indicate each program to which the unit is subject, and enter all other unit-specific information. See instructions for more details.

Applicable Program(s): Acid Rain CAIR NO_x Annual CAIR SO₂ CAIR NO_x Ozone Season MATS
 TR NO_x Annual TR NO_x Ozone Season TR SO₂ Annual

CT3	CT	Electric Utility	Generator ID Number (Maximum 8 characters)	Acid Rain Nameplate Capacity (MWe)	CAIR/ MATS/Transport Rule Nameplate Capacity (MWe)
Unit ID#	Unit Type	Source Category	CTG3		
Date unit began (or will begin) serving any generator producing electricity for sale (including test generation) (mm/dd/yyyy):		Is this unit located in Indian Country?		Has this unit ever operated at another location?	
7/3/2016		Check One: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Check One: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Company Name:		Check One: Actual <input type="checkbox"/> Projected <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator	
Pio Pico Energy Center, LLC					
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	
Company Name:				<input type="checkbox"/> Owner <input type="checkbox"/> Operator	

STEP 5: Read the appropriate certification statements that apply (if), sign, and date.Acid Rain Program

I certify that I was selected as the designated representative or alternate designated representative (as applicable) by an agreement binding on the owners and operators of the affected source and each affected unit at the source (i.e., the source and each unit subject to the Acid Rain Program, as indicated in "Applicable Program(s)" in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the Acid Rain Program on behalf of the owners and operators of the affected source and each affected unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the affected source and each affected unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, an affected unit, or where a utility or industrial customer purchases power from an affected unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the designated representative or alternate designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the affected source and each affected unit at the source; and

Allowances, and proceeds of transactions involving allowances, will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of allowances, allowances and proceeds of transactions involving allowances will be deemed to be held or distributed in accordance with the contract.

Clean Air Interstate Rule (CAIR) NO_x Annual Trading Program

I certify that I was selected as the CAIR designated representative or alternate CAIR designated representative (as applicable), by an agreement binding on the owners and operators of the CAIR NO_x source and each CAIR NO_x unit at the source (i.e., the source and each unit subject to the CAIR NO_x Annual Trading Program, as indicated in "Applicable Program(s)" in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the CAIR NO_x Annual Trading Program on behalf of the owners and operators of the CAIR NO_x source and each CAIR NO_x unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the CAIR NO_x source and each CAIR NO_x unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a CAIR NO_x unit, or where a utility or industrial customer purchases power from a CAIR NO_x unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the CAIR designated representative or alternate CAIR designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the CAIR NO_x source and each CAIR NO_x unit at the source; and

CAIR NO_x allowances and proceeds of transactions involving CAIR NO_x allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of CAIR NO_x allowances by contract, CAIR NO_x allowances and proceeds of transactions involving CAIR NO_x allowances will be deemed to be held or distributed in accordance with the contract.

Clean Air Interstate Rule (CAIR) SO₂ Trading Program

I certify that I was selected as the CAIR designated representative or alternate CAIR designated representative (as applicable), by an agreement binding on the owners and operators of the CAIR SO₂ source and each CAIR SO₂ unit at the source (i.e., the source and each unit subject to the SO₂ Trading Program, as indicated in "Applicable Program(s)" in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the CAIR SO₂ Trading Program, on behalf of the owners and operators of the CAIR SO₂ source and each CAIR SO₂ unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the CAIR SO₂ source and each CAIR SO₂ unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a CAIR SO₂ unit, or where a utility or industrial customer purchases power from a CAIR SO₂ unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the CAIR designated representative or alternate CAIR designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the CAIR SO₂ source and each CAIR SO₂ unit at the source; and

CAIR SO₂ allowances and proceeds of transactions involving CAIR SO₂ allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of CAIR SO₂ allowances by contract, CAIR SO₂ allowances and proceeds of transactions involving CAIR SO₂ allowances will be deemed to be held or distributed in accordance with the contract.

Clean Air Interstate Rule (CAIR) NO_x Ozone Season Trading Program

I certify that I was selected as the CAIR designated representative or alternate CAIR designated representative (as applicable), by an agreement binding on the owners and operators of the CAIR NO_x Ozone Season source and each CAIR NO_x Ozone Season unit at the source (i.e., the source and each unit subject to the CAIR NO_x Ozone Season Trading Program, as indicated in "Applicable Program(s)" in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the CAIR NO_x Ozone Season Trading Program on behalf of the owners and operators of the CAIR NO_x Ozone Season source and each CAIR NO_x Ozone Season unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the CAIR NO_x Ozone Season source and each CAIR NO_x Ozone Season unit shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a CAIR NO_x Ozone Season unit, or where a utility or industrial customer purchases power from a CAIR NO_x Ozone Season unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the CAIR designated representative or alternate CAIR designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the CAIR NO_x Ozone Season source and each CAIR NO_x Ozone Season unit; and

CAIR NO_x Ozone Season allowances and proceeds of transactions involving CAIR NO_x Ozone Season allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of CAIR NO_x Ozone Season allowances by contract, CAIR NO_x Ozone Season allowances and proceeds of transactions involving CAIR NO_x Ozone Season allowances will be deemed to be held or distributed in accordance with the contract.

Transport Rule NO_x Annual Trading Program

I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the source and each TR NO_x Annual unit at the source.

I certify that I have all the necessary authority to carry out my duties and responsibilities under the TR NO_x Annual Trading Program on behalf of the owners and operators of the source and of each TR NO_x Annual unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any order issued to me by the Administrator regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a TR NO_x Annual unit, or where a utility or industrial customer purchases power from a TR NO_x Annual unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the 'designated representative' or 'alternate designated representative', as applicable, and of the agreement by which I was selected to each owner and operator of the source and of each TR NO_x Annual unit at the source.

TR NO_x Annual allowances and proceeds of transactions involving TR NO_x Annual allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of TR NO_x Annual allowances by contract, TR NO_x Annual allowances and proceeds of transactions involving TR NO_x Annual allowances will be deemed to be held or distributed in accordance with the contract.

Transport Rule NO_x Ozone Season Trading Program

I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the source and each TR NO_x Ozone Season unit at the source.

I certify that I have all the necessary authority to carry out my duties and responsibilities under the TR NO_x Ozone Season Trading Program on behalf of the owners and operators of the source and of each TR NO_x Ozone Season unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any order issued to me by the Administrator regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a TR NO_x Ozone Season unit, or where a utility or industrial customer purchases power from a TR NO_x Ozone Season unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the 'designated representative' or 'alternate designated representative', as applicable, and of the agreement by which I was selected to each owner and operator of the source and of each TR NO_x Ozone Season unit at the source.

TR NO_x Ozone Season allowances and proceeds of transactions involving TR NO_x Ozone Season allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of TR NO_x Ozone Season allowances by contract, TR NO_x Ozone Season allowances and proceeds of transactions involving TR NO_x Ozone Season allowances will be deemed to be held or distributed in accordance with the contract.

Transport Rule SO₂ Annual Group 1 Trading Program

I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the source and each TR SO₂ Group 1 unit at the source.

I certify that I have all the necessary authority to carry out my duties and responsibilities under the TR SO₂ Group 1 Trading Program on behalf of the owners and operators of the source and of each TR SO₂ Group 1 unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any order issued to me by the Administrator regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a TR SO₂ Group 1 unit, or where a utility or industrial customer purchases power from a TR SO₂ Group 1 unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the 'designated representative' or 'alternate designated representative', as applicable, and of the agreement by which I was selected to each owner and operator of the source and of each TR SO₂ Group 1 unit at the source.

TR SO₂ Group 1 allowances and proceeds of transactions involving TR SO₂ Group 1 allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of TR SO₂ Group 1 allowances by contract, TR SO₂ Group 1 allowances and proceeds of transactions involving TR SO₂ Group 1 allowances will be deemed to be held or distributed in accordance with the contract.

Transport Rule SO₂ Annual Group 2 Trading Program

I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the source and each TR SO₂ Group 2 unit at the source.

I certify that I have all the necessary authority to carry out my duties and responsibilities under the TR SO₂ Group 2 Trading Program on behalf of the owners and operators of the source and of each TR SO₂ Group 2 unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any order issued to me by the Administrator regarding the source or unit.

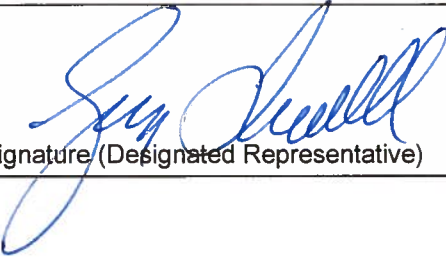
Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a TR SO₂ Group 2 unit, or where a utility or industrial customer purchases power from a TR SO₂ Group 2 unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the 'designated representative' or 'alternate designated representative', as applicable, and of the agreement by which I was selected to each owner and operator of the source and of each TR SO₂ Group 2 unit at the source.

TR SO₂ Group 2 allowances and proceeds of transactions involving TR SO₂ Group 2 allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of TR SO₂ Group 2 allowances by contract, TR SO₂ Group 2 allowances and proceeds of transactions involving SO₂ Group 2 allowances will be deemed to be held or distributed in accordance with the contract.

General

I am authorized to make this submission on behalf of the owners and operators of the source or units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

 Signature (Designated Representative)	6/26/17 Date
Signature (Alternate Designated Representative)	Date



Pio Pico Energy Center, LLC
7363 Calzada De La Fuente
San Diego, California 92154

Attachment D

SDAPCD Applicable Rule Analysis

~~included in the annual maximums specified by permit conditions and these limits are not being increased.~~

Table 3a – Maximum Turbine Hourly Emissions During Commissioning

Pollutant	Emissions from Each Turbine	Emissions from Three Turbines
	lbs/hr	lbs/hr
NO _x	150	150
CO	75	225
VOCs	5	15
PM10	5.0	15.0
PM2.5	5.0	15.0
SO _x	<2.1	<6.3

Table 3b – Maximum Turbine Daily Emissions During Commissioning

Pollutant	Emissions from Each Turbine	Emissions from Three Turbines
	lbs/day	lbs/day
NO _x	3600	3600
CO	1800	5400
VOCs	120	360
PM10	120	360
PM2.5	120	360
SO _x	<50.4	<151.3

Table 3c – Maximum Turbine Total Emissions During Commissioning

Pollutant	Emissions from Each Turbine	Emissions from Three Turbines
	tons	tons
NO _x	8.4	25.2
CO	4.2	12.6
VOCs	0.28	0.84
PM10	0.31	0.93
PM2.5	0.31	0.93
SO _x	<0.12	<0.36

2015 Rule Applicability Analysis

6.0 Rules Analysis

6.1 District PSD and NSR Rules

This section will discuss the implications to the PSD and NSR discussions contained in the original FDOC due to the proposed modification. For full discussion of the issues, see the original FDOC.

Rule 20.1(c)(35) – Major Stationary Source

This modification does not affect the major source status of the stationary source – it is still considered a major source of NO_x but not a major source for any of the other criteria pollutants.

Rule 20.1(c)(58) – Prevention of Significant Deterioration (PSD) Stationary Source and 40 CFR 52.21

This modification does not affect the PSD status of the stationary source – it is still not considered a PSD stationary source under District Rules and Regulations.

As noted in the original FDOC, the project was previously determined to be subject to federal PSD permitting due to the increase in greenhouse gas (GHG) emissions. However, since the issuance of the original FDOC and the federal PSD permit, the U.S. Supreme Court invalidated the portion of the EPA regulation requiring PSD permits for projects that only trigger PSD permitting due to an increase in GHG emissions (known as "Step 2 of the Green House Gas Tailoring Rule"). The EPA has subsequently modified their rules to allow the rescission of PSD permits issued under this rule provision¹.

Rule 20.1(c)(16), 40 CFR §52.21, and 40 CFR Appendix S to Part 51– Contemporaneous Emission Increase

This modification does not affect the contemporaneous emission increase for the project except for the reduction in PM₁₀ and PM_{2.5} emissions as will be discussed later in this section. The contemporaneous emission increase for this stationary source is shown in Table 2b.

Rule 20.3(d)(1)- Best Available Control Technology(BACT)/Lowest Achievable Emission Rate (LAER)

The only changes to the BACT or LAER determinations for this project being made as part of this modification are to lower the emission limits for PM₁₀ and PM_{2.5}. The change will lower the allowable emissions from each single turbine to no more than 5.0 lb/hr for both PM₁₀ and PM_{2.5}. Additionally, a maximum of 3.5 lb/hr average for all 3 combustion turbines averaged across the most recent 2 source tests for each turbine (for a total of six tests) will be included in permit conditions. This change is based on the Districts review of other projects involving the use of similar LMS100 gas turbines which have shown the ability to comply with a 5 lb/hr limit and a 3.5 lb/hr limit average as described, so these are considered achievable for this class/category of equipment and are, therefore, BACT.

NOx and VOC emission rates were also reviewed as part of this modification and found to continue to meet BACT requirements. The only change will be permit conditions to require that test methods used to measure VOC emissions will include measurement of formaldehyde, but this does not alter the BACT emission limit of 2.0 ppmvd VOC corrected to 15% O₂.

Because this was a modification to an existing project, alternative technologies (such as solar power or energy storage) were not reviewed because they constitute entire new projects rather than modifications to the existing project, and therefore are not technologically feasible because they do not meet the project objective of the modification – to increase the heat input of a gas turbine. The original FDOC addresses alternatives to the existing project.

¹ <http://www.epa.gov/airquality/permits/actions.html>

Rule 20.3(d)(2) – Air Quality Impact Analysis (AQIA)

Permit conditions will ensure that emissions of any pollutants potentially subject to AQIA do not increase compared to the allowed emissions described in the original FDOC that were analyzed with an AQIA, with the exception of SOx emissions which may increase on daily and hourly bases. This small increase is below the thresholds listed in Table 20.3-1, and therefore an AQIA is not required for this modification. Additionally, the applicant included with the application the results of modeling conducted using the revised exhaust parameters due to the increase in heat input to demonstrate to the District that no additional exceedances of the state or federal ambient air quality standards would occur. Based on the District's review of these model runs plus some additional model runs performed by the District, there is no indication that the modification would affect the conclusions of the AQIA described in the original FDOC that the project meets the requirements of Rule 20.3(d)(2).

One final change was the request by the applicant to have the commissioning NOx limit allow for up to 150 lb/hr NOx combined for all three turbines instead of 50 lb/hr from each turbine. The stacks are located sufficiently near each other such that this change will not affect the conclusions of the AQIA described in the original FDOC.

The detailed AQIA report is in Appendix C.

Rule 20.3 (d)(3) -Prevention of Significant Deterioration (PSD)

This application does not result in an increase in annual emissions, and therefore does not change the PSD conclusions of the original FDOC – that this project is not subject to District PSD regulations.

Rule 20.3(d)(4) – Public Notice and Comment

This application was not subject to PSD or the AQIA requirements of this rule. However, because this modification project is subject to CEC review similar to an AFC, the District provided a Preliminary Determination of Compliance (PDOC) for public notice and public comment period in accordance with the provisions of this section to satisfy the requirements of Rule 20.5(g). The PDOC was noticed on June 17, 2015, with a 30-day comment period. No comments were received except for minor editorial comments from the applicant.

Rule 20.3(d)(5)-Emission Offsets

As stated in the original FDOC, the NOx emission increase of the project triggered the requirement to provide offsets. This application does not increase the allowable NOx emissions or increase emissions such that offsets would be required for another pollutant, and, therefore, no additional requirements apply for this application.

Rule 20.3(e)(1) – Compliance Certification

As stated in the original FDOC, the applicant submitted all required compliance certifications for the original project. This modification application does not trigger LAER or offset requirements, and therefore an additional compliance certification is not required.

Rule 20.3(e)(2) – Alternative Siting and Alternatives Analysis

This modification application did not result in offset or LAER requirements, and therefore an alternative siting and alternatives analysis was not required.

Rule 20.5 – Power Plants

This rule requires that the District issue a PDOC/FDOC for all projects which have submitted an AFC to the CEC. This application is an amendment that modifies a project for which an AFC has been filed and the District has previously issued an FDOC and for which the CEC has licensed. The District, therefore, issued a PDOC for the proposed modification with proposed revised permit conditions to reflect the modification and this FDOC Amendment.

6.2 District Prohibitory Rules and Toxics

The only District prohibitory rule that is potentially affected by this modification is rule 69.3.1. For discussion of compliance with all other prohibitory rules, see the original FDOC.

Rule 69.3.1 – Stationary Gas Turbines – Best Available Retrofit Control Technology

This rule limits NO_x emissions from combustion turbines greater than 10 MW to 15 x (E/25) ppmvd when operating uncontrolled and 9 x (E/25) ppmvd at 15% oxygen when operating with add-on emission controls and averaged over a one-hour period, where E is the thermal efficiency of the unit based on the higher heating value of the fuel. Since this application changes the maximum heat input and energy output, the emission standard may be altered as shown in the following table:

	Original	Modification
MRTE	0.429	0.430
HI LHV	818.2	844.5
HI HHV	908.2	937.4
Output (MW)	102.9	106.4
Output (MMBtu/hr)	351.2	363.1
E	38.7%	38.7%
Controlled Emission Limit	13.9	13.9
Uncontrolled Emission Limit	23.2	23.2

This table shows that the modified controlled and uncontrolled NOx emission limits would be the same as in the original permit. The District notes that this calculation is based on the "manufacturer's continuous rated percent thermal efficiency of the gas turbine engine...at peak load" which utilizes the somewhat lower heat input provided by the turbine manufacturer (GE) for the peak load rather than the maximum heat input of 1000 MMBtu/hr requested by the applicant.

This modification application does not have any further impacts on rule 69.3.1 compliance or any other prohibitory rules.

Rule 1200 – Toxic Air Contaminants

The original FDOC conditions do not directly limit emissions of toxic air contaminants (TACs), the District determined that the proposed modification would result in a potential increase in emissions of TACs, and, therefore, a revised health risk assessment was conducted. The analysis was conducted based on the entire potential emissions of TACS for the proposed equipment rather than just the increase in emissions due to this modification.

The full health risk assessment report can be seen as appendix B. This assessment demonstrated that the potential additional health risk from PPEC including the added emissions from this modification result in no more than one in one million cancer risk increase and acute and chronic HHI of no more than one. Thus, toxic best available control technology (TBACT) is not required and the project is in compliance with the acute and chronic standards of Rule 1200.

6.3 State Regulations Implemented by the District

This modification application does not affect compliance with any state regulations implemented by the District.

6.4 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This equipment is not subject to any NESHAPs, and therefore the modification does not affect compliance with any NESHAPs.

6.5 New Source Performance Standards (NSPS)

This is subject to NSPS subpart KKKK however this modification application will not affect the applicability of any rule requirements. See the original FDOC for full discussion of NSPS requirements. There are some changes to the language of permit conditions, some of which relate to NSPS compliance, however these changes are administrative or enhancing the enforceability or clarity of the condition and do not affect the stringency of the actual requirements previously discussed in the original FDOC.

6.6 Acid Rain


This application does not affect acid rain program requirements. As stated in the original FDOC, an application for acid rain has been filed with the U.S. EPA for the project. For additional discussion of acid rain program requirements, see the original FDOC.

7.0 Additional Issues

There are no additional issues associated with this modification.

8.0 Conclusion and Recommendations

If operated in accordance with the proposed conditions specified in this Final Determination of Compliance Amendment, this equipment is expected to operate in compliance with all Rules and Regulations of the San Diego County Air Pollution Control District. (See Appendix D for the proposed conditions).

Signed By  8/25/15
Project Engineer Date

Signed By  8-25-15
Senior Engineer Date

V. RULES ANALYSIS

DISTRICT AND FEDERAL NSR AND PSD REGULATIONS

Rule 20.1(c)(35) – Major Stationary Source

Major stationary source means any emission unit or stationary source which has, or will have after issuance of a permit, an aggregate potential to emit one or more air contaminants, including fugitive emissions, in amounts equal to or greater than any of following emission rates:

<u>Air Pollutant</u>	<u>Emission Rates (tons/year)</u>
PM10	100
NOx	50
VOCs	50
SOx	100
CO	100
Lead (Pb)	100

Major source status is only relevant for pollutants for which the District does not attain an applicable national air quality standard. Since the District attains all national ambient air quality standards with the exception of ozone, major source status is only relevant for NOx and VOCs, both of which are ozone precursors. Based on its potential to emit, the PPEC is a major stationary source for NOx.

~~Rule 20.1(c)(58) – Prevention of Significant Deterioration (PSD) Stationary Source and 40 CFR 52.21~~

~~Although the PPEC is a fossil-fuel-fired electrical generating plant with a heat input rating greater than 250 MMBtu/hr, it is not a steam generating plant. Therefore PSD Stationary Source status is defined by an aggregate potential to emit one or more air contaminants in amounts equal to or greater than any of the following emission rates under District rules and under federal rules except for the recently promulgated federal PSD requirements for greenhouse gases:~~

<u>Air Pollutant</u>	<u>Emission Rates (tons/year)</u>
PM10	250
PM2.5	250
PM	250
NO ₂	250
VOCs	250
SO ₂	250
CO	250
Lead (Pb)	250

~~(Note that District Rule 20.1 does not explicitly address PM2.5 nor does it address particulate matter of all sizes (PM). However, PM2.5 is addressed as subset of PM10).~~

~~As of July 1, 2011, federal PSD requirements apply to a new stationary source that emits more than 100,000 ton per year of greenhouse gases (GHGs). PPEC's potential to emit exceeds this federal PSD stationary source threshold for GHGs. Consequently, PPEC submitted an application to EPA for a federal PSD permit in April, 2011.~~

~~The District is currently not delegated to implement federal PSD by EPA nor does it have a PSD rule that has been approved by EPA. Hence, PSD permitting for federal PSD is solely the responsibility of EPA at the current time. The District's New Source Review (NSR) rules do contain provisions for PSD that the District implements locally. The proposed project's compliance with these provisions is evaluated in the FDOC in accordance with District Rules and Regulations. It is worth noting that, although the District PSD provisions reflect many elements of federal PSD, there are some differences. In particular, the District currently has no authority in its Rules and Regulations to address greenhouse gases (GHGs).~~

~~While the District may seek federal delegation of the PSD permitting program in the future, at this time the federal PSD permit remains a separate matter under federal jurisdiction and permitting by the EPA. Thus, EPA would currently be the agency to issue a PSD permit, with no effect on the validity of the District's Final Determination of Compliance (FDOC).~~

**Rule 20.1(c)(16), 40 CFR §52.21, and 40 CFR Appendix S to Part 51–
Contemporaneous Emission Increase**

Contemporaneous emission increase is defined in Rule 20.1 (c)(16) as the sum of emission increases from new or modified emission units occurring at a stationary source within the calendar year in which the subject emission units is expected to “commence operation” and the preceding four calendar years, including all other emission units with complete applications under District review and which are expected to commence operation within such calendar year. The PPEC three CTGs will be the first emission units operating at this stationary source. Therefore, the Contemporaneous Emission Increase for the PPEC stationary source is the same as the project potential to emit.

**Rule 20.3(d)(1)- Best Available Control Technology(BACT)/Lowest Achievable
Emission Rate(LAER)**

Subsection 20.3(d)(1)(i) of the rule requires that Best Available Control Technology (BACT) be installed on a new or modified emission unit on a pollutant-specific basis if emissions exceed 10 lbs/day or more of PM10, NOx, VOCs, or SOx. Subsection 20.3(d)(1)(v) also requires that Lowest Achievable Emission Rate (LAER) be installed for a new emission unit which results in an emission increase which constitutes a new major source or a major modification.

LAER cannot be less stringent than BACT and is required only for air contaminants and their precursors for which the stationary source is major and for which the District is classified as non-attainment of a national ambient air quality standard. Because the District attains the National Ambient Air Quality Standards (NAAQS) for CO, SO₂, PM_{2.5} and PM₁₀, LAER does not apply to these pollutants. LAER, however, applies to NOx emissions since the PPEC constitutes a major stationary source for NOx. For the PPEC combustion turbines, BACT applies for VOCs, SOx, PM₁₀ and PM_{2.5} as a subset of PM₁₀ emissions because their emissions are more than 10 pounds per day.

In summary, based on emission estimates, LAER is triggered for NOx and, for the combustion turbines, BACT is triggered for VOCs, SOx, and PM₁₀.

Oxides of Nitrogen (NOx)—Combustion Turbines, Normal Operations

The turbine vendor has guaranteed a NOx emission level of 2.5 ppmvd at 15% oxygen with water injection for the CTG and with the SCR add-on air pollution control system to control NOx installed. The Applicant has proposed a NOx emission limit of 2.5 ppmvd averaged over one hour as BACT and LAER during normal operations.

The District consulted the EPA BACT / LAER Clearinghouse, other air district decisions and BACT Guidelines, and ARB for recent BACT/LAER determinations. A number of simple-cycle power plants of comparable size were permitted with NOx at 2.5 ppmvd, averaged over one hour. The District examined the following projects with NOx emission limits at 2.5 ppmvd at 15% oxygen:

- The Panoche Energy Center is permitted by the San Joaquin Valley Unified Air Pollution Control District [CEC Final Approval issued on December 19, 2007 (CEC Docket No. 06-AFC-5)] and has been in operation since 2009. This plant has four GE LMS100 combustion turbines similar to the ones proposed for the PPEC. This plant has been in compliance with a 2.5 ppmvd NOx limit averaged over one hour, excluding startups and shutdowns.
- The Starwood Power Project is permitted by the San Joaquin Valley Air Pollution Control District [CEC Final Approval issued on January 16, 2008 (CEC Docket No. 06-AFC-10)] and has been in operation since 2009. This 120 MW plant consisting of two Pratt & Whitney FT8-3 SwiftPac CTGs has been in compliance with a 2.5 ppmvd NOx limit averaged over one hour, excluding startups and shutdowns.
- The Orange Grove Energy Center is permitted by the San Diego Air Pollution Control District [CEC Final Approval was issued on April 8, 2009 (CEC Docket No. 08-AFC-4)] and has been in operation since 2010. This plant consisting of two 49.5 MW GE LM 6000 PC SPRINT CTGs has been able to comply with a 2.5 ppmvd NOx limit averaged over one hour, excluding startups and shutdowns.

- The Mariposa Peaker Project is permitted by the Bay Area Air Quality Management District [CEC Final Approval issued on May 18, 2011 (CEC Docket No. 2009-AFC-3C)] and is currently under construction. This approximately 200 MW plant consisting of four GE LM6000-PC SPRINT CTGs is permitted with a 2.5 ppmvd NOx limit averaged over one hour, excluding startups and shutdowns.
- The CPV Sentinel, LLC project is permitted by the South Coast Air Quality Management District [CEC Final Approval was issued on December 1, 2010 (CEC Docket No. 2007-AFC-3C)] and is currently under construction. This plant consists of eight GE LMS100 CTGs similar to the ones proposed for the PPEC. This plant is permitted with a 2.5 ppmvd NOx limit averaged over one hour, excluding startups and shutdowns.

Based on the above information, the District has determined that BACT for NOx should be 2.5 ppmvd at 15% oxygen, averaged over one hour for normal operation with exclusions for startups and shutdowns. As defined in Rule 20.1(c)(32), LAER means the most stringent emission limitation, or most effective emission control device or control technique, unless such emission limit, device or technique is not achievable. An emission limit of 2.5 ppmvd NOx at 15% oxygen averaged over one hour is considered by the District to be the current most stringent emission limit for simple-cycle combustion turbines that is achievable. Therefore, this standard also applies as LAER for NOx for such turbines.

As proposed by the Applicant, the PPEC combustion turbines will be equipped with water injection for the combustors and a SCR add-on emission control system that in combination are designed to achieve 2.5 ppmvd NOx averaged over one hour. The District is unaware of any demonstrations that alternative technologies for control of NOx such as the XONON™ catalytic combustors or EMx™ (SCONOX) catalyst system can achieve NOx emission levels lower than the combination of water injection for the combustors and SCR on large (greater than 50 MW) natural-gas-fired simple-cycled combustion turbines. A continuous emission monitoring system (CEMS) and annual source testing will be used to confirm compliance with this emission limit.

Volatile Organic Compounds (VOCs)—Combustion Turbines, Normal Operations

The turbine vendor has guaranteed a VOC emission level of 2.0 ppmvd at 15% oxygen with the oxidation catalyst add-on air pollution control system, which is the only post-combustion technology currently available to control CO, VOCs, and toxic emissions. The Applicant has proposed a VOC emission limit of 2.0 ppmvd as methane at 15% oxygen averaged over one hour as BACT for normal operations. The limit is to be achieved by use of an oxidation catalyst system.

The District consulted the EPA BACT / LAER Clearinghouse, other air district decisions and BACT Guidelines, and ARB for recent BACT/LAER determinations. The District examined the following simple-cycle combustion turbine projects with VOC emission limits of 2.0 ppmvd or less measured as methane at 15% oxygen:

- The Panoche Energy Center is permitted by the San Joaquin Valley Unified Air Pollution Control District [CEC Final Approval was issued on December 19, 2007 (CEC Docket No. 06-AFC-5)] and has been in operation since 2009. This plant has four GE LMS100 combustion turbines similar to the ones proposed for the PPEC. This plant has been in compliance with a 2.0 ppmvd VOC limit averaged over three hours, excluding startups and shutdowns
- The Starwood Power Project is permitted by the San Joaquin Valley Air Pollution Control District [CEC Final Approval was issued on January 16, 2008 (CEC Docket No. 06-AFC-10)] and has been in operation since 2009. This approximately 120 MW plant consisting of two Pratt & Whitney FT8-3 SwiftPac CTGs has been in compliance with a 2.0 ppmvd VOC limit averaged over three hours, excluding startups and shutdowns.
- The Orange Grove Energy Center is permitted by the San Diego Air Pollution Control District [CEC Final Approval was issued on April 8, 2009 (CEC Docket No. 08-AFC-4)] and has been in operation since 2010. This plant consists of two 49.5 MW GE LM6000-

PC SPRINT CTGs has been able to comply with a 2.0 ppmvd VOC limit averaged over one hour, excluding startups and shutdowns.

- The El Cajon Energy Project consisting of one 49 MW GE LM6000 PC SPRINT CTG is permitted by the San Diego Air Pollution Control District in 2010 with VOC limit of 2.0 ppmvd averaged over one hour. This plant demonstrated compliance with this limit through initial compliance testing in 2010.
- The CPV Sentinel, LLC project was permitted in the South Coast Air Quality received CEC Final Approval on December 1, 2010 (CEC Docket No. 2007-AFC-3C), and is currently under construction. This plant consists of eight GE LMS100 CTGs similar to the ones proposed for the PPEC. This plant is permitted with a VOC limit of 2.0 ppmvd averaged over one hour, excluding startups and shutdowns.
- The Mariposa Energy Project (MEP) in the Bay Area Air Quality Management District received CEC Final Approval on December 1, 2010 (CEC Docket No. 09-AFC-03), and is currently under construction. This plant consists of four GE LM6000 PC SPRINT CTGs. This plant is permitted with a 1.0 ppmvd VOC limit averaged over one hour, excluding startups and shutdowns. The limit is based on an engineering and cost-effectiveness analysis by the applicant.

The District notes that recent successive District compliance tests on two currently permitted simple-cycle LM6000 PC SPRINT turbines equipped with oxidation catalysts gave the following results:

VOC Concentration, ppmvd Measured as Methane at 15% O ₂		
Test Method	Turbine A	Turbine B
Method ^a 18	< 0.09 ^c	1.16 ^d
Methods ^b 25A and 18	0.98	0
Methods ^b 25A and 18	0.67	1.97

^aEPA Method 18 measures a selection of expected VOCs with gas chromatography.

^bAll organic compounds are measured, unspecified, with EPA Method 25A and then methane and ethane, which are not VOCs, are measured by EPA Method 18 and subtracted from the total.

^cOne half the detection limit for the sum of VOCs measured is given because all species were below the detection limit.

^dApproximately 0.10 ppmvd of the measured value were species that were not detected and so had concentrations of one half of the detection limit assigned.

Based on the above information, the lowest VOC limit that has been achieved in practice (proven in the field) is 2.0 ppmvd. Determinations of compliance for an emission limit of 1.0 ppmvd or less may be sensitive to the test method, test procedures, and detection limits used to verify compliance.

In addition, there is the potential for the PPEC facility to combust fuel derived from imported liquefied natural gas, which can have a higher VOC content than the natural gas fuel historically used in San Diego and would be expected to have higher VOC emissions compared than the historical gas supply. Compliance with a 1.0 ppmvd limit when combusting higher VOC content natural gas has not been demonstrated, and it may not be technologically feasible to achieve a 1.0 ppmvd limit when combusting such gas. It should be noted that the applicant's vendor considered natural gas with higher VOC amounts when guaranteeing controlled emission rates.

Although the District may investigate further, based on the above information and considerations, the District has determined that, at this time, BACT for the PPEC combustion turbines is a 2.0 ppmvd VOC limit, measured as methane at 15% O₂ over a one-hour averaging period for normal operation with exclusions for startups and shutdowns. An initial source test will be used to confirm compliance with the limit. Additionally, the source test data will be used to establish a correlation between CO emissions and VOC emissions to provide an accurate indicator of continued compliance with the limit using the CEMS data for CO on a one-hour

basis. Compliance will be determined based on both source test data and a surrogate relationship with CO because CEMS technology is not yet available for VOCs.

Startups and Shutdowns—Combustion Turbines, NO_x, CO, and VOCs

Startups are limited to 30 minutes and shutdowns to 11 minutes. These times are consistent with, or more stringent than the Orange Grove Energy project permitted by the San Diego Air Pollution Control District [CEC Final Approval issued on April 8, 2009 (CEC Docket No. 08-AFC-4)], and the El Cajon Energy Project permitted by the San Diego Air Pollution Control District in 2010, both of which are simple-cycle turbines. The CPV Sentinel LLC project is permitted by the South Coast Air Quality Management District in 2010 [CEC Final Approval issued on December 1, 2010 (CEC Docket No. 2007-AFC-3C)]. This project consists of eight GE LMS 100 CTGs similar to the ones proposed for the PPEC and is limited to 25 minutes for startup and 10 minutes for shutdown. Since this project is still under construction, these lower time limits for startups and shutdowns are not considered achieved in practice. Also, the NO_x emission limit for startup for the CPV Sentinel LLC project is 29.54 lbs/hour, while the startup emission limit for the PPEC 26.63 lbs/hour.

Emissions during startup and shutdown are further controlled by setting mass emission limits per startup and shutdown event (excluding the commissioning period). The mass emission limits are based on manufacturer emission estimates for the expected startup or shutdown durations.

Table 5a presents the mass emissions limits during startup and shutdown

Table 5a – Emission Limits During Startup (SCR to Operate as Soon as Feasible) and Shutdown		
Pollutants	Startup Emissions, pounds per event	Shutdown Emissions pounds per event
NOx	22.54	6.00
CO	17.86	47.00
VOCs	4.67	3

An additional requirement that applies during startups and shutdowns (and all other times the combustion turbine is operating with an SCR system) is that the SCR be in full operation as soon as it reaches its minimum operating temperature to control NOx to the maximum extent feasible.

The District has determined that the above requirements represent BACT for NOx and VOCs and LAER, for NOx only, during startups and shutdowns of the combustion turbines.

PM10 and SOx—Combustion Turbines

From the ARB Guidance for Power Plant Siting and Best Available Control Technology, September 1999, BACT for this equipment is the use of natural gas that contains less than 1 grain of sulfur compounds per 100 standard cubic feet of natural gas. Public Utility Commission (PUC) quality natural gas sold in San Diego County is required to meet a maximum sulfur content limit of 0.75 grains of sulfur compounds per 100 standard cubic feet of natural gas. Therefore, use of PUC quality natural gas meeting this 0.75 grains limit is BACT. In actuality, the natural gas in the local gas distribution system averages well under 0.75 grains per 100 standard cubic feet of gas. The Applicant will be required to maintain documents showing the sulfur content of natural gas used. Any alternative supplies of natural gas must meet this sulfur content limit.

PM10 - WSAC

PM10 emission from the WSAC results from the water droplets coming from the cooling tower discharge and is controlled with the drift eliminator to limit the drift rate. The District consulted the EPA BACT/LAER Clearinghouse, other air district decisions and BACT Guidelines, and ARB for recent BACT/LAER determinations for the most current cooling tower, which have similar emission characteristics to WSACs, drift rates.

- The CPV Sentinel LLC project is permitted by the South Coast Air Quality Management District [CEC Final Approval issued on December 1, 2010 (CEC Docket No. 2007-AFC-3C)]. This project consists of eight GE LMS 100 CTGs similar to the ones proposed for the PPEC. This project cooling tower is limited to drift rate of 0.0005%. This project is still under construction.

- The Osceola Steel Co. was permitted by the Georgia Department of Natural Resources in December 2010 for a steel mill with three cooling towers. The cooling towers are limited to drift rate of 0.0005%. This plant has not been constructed yet.

- The Panda Sherman Power Station was permitted by the Texas Commission on Environmental Quality in February 2010 for a 600MW combined-cycle power plant. The cooling tower for this plant is limited to 0.0005% drift rate. This plant has not been constructed yet.

- The Orange Grove Energy Center is permitted by the San Diego Air Pollution Control District [CEC Final Approval issued on April 8, 2009 (CEC Docket No. 08-AFC-4)] and has been in operation since 2010. The cooling tower for this plant is limited to 0.001% drift rate.

- The El Cajon Energy Project consisting of one 49 MW CTG was permitted by the San Diego Air Pollution Control District in 2010, with a limit of 0.001% for the cooling tower drift rate.

Since the projects permitted with the lower drift rate of 0.0005% have not been in operation, this drift rate is not considered achievable in practice and is not considered BACT. Based on

this information, the District has determined that a drift rate of 0.001% is BACT for PPEC cooling tower.

Rule 20.3(d)(2) – Air Quality Impact Analysis (AQIA)

This subsection of Rule 20.3 requires that a project resulting in an emission increase equal to or greater than the AQIA Thresholds demonstrate through an AQIA that the project will not cause or contribute to a violation of a state or national ambient air quality standard. For the PPEC, an Air Quality Impact Analysis (AQIA) was performed to determine if the proposed project by itself contributes to an exceedance of the national ambient air quality standards or the state ambient air quality standards. The modeling was done under expected worst-case hourly and annual emission rates during commissioning, startup and shutdown, and normal operations.

The analysis shows no violation of any national or state ambient air quality standard. The analysis can be reviewed in more detailed the Appendix A of this determination. The FDOC permit conditions contain hourly and annual emission limits that are applicable at all times to ensure that the project will not cause or contribute to a violation of any National Ambient Air Quality Standard or California Ambient Air Quality Standard.

Rule 20.3 (d)(3) -Prevention of Significant Deterioration (PSD)

This subsection requires that a PSD evaluation be performed for any new PSD stationary source (a source that has an aggregate potential to emit of one or more air contaminants in amount equal to or greater than the PSD thresholds) and to any PSD modification (contemporaneous emission increase occurring at a modified PSD stationary source equal to or greater than the PSD modification thresholds), for those air contaminants for which the District is classified as attainment or unclassified with respect to a national ambient air quality standard. The limits on NO_x, CO, VOC emissions on the FDOC will keep the project from triggering any PSD requirements under Rule 20.3(a)(3). Since the annual limit suffices to avoid triggering the PSD threshold and NO_x, CO and VOC emissions are monitored with CEMS, no limits on hours of normal operations or startup and shutdown are necessary.

Rule 20.3(d)(4) – Public Notice and Comment

For any project that is subject to the AQIA requirements of Rule 20.3(d)(2), these provisions require that the District publish a notice of the proposed action in at least one newspaper of general circulation in San Diego County as well as send notices and specified documents to the EPA and ARB. Because the project is not subject to Rule 20.3(d)(3) the additional notification requirements of Rule 20.3(d)(3)(iii) are not applicable. Notice of proposed installation of the PPEC will be published in the San Diego Daily Transcript and mailed to EPA and ARB air districts for a 30-day comment period in accordance with Rule 20.3(d)(4).

Rule 20.3(d)(4)(i) requires that the District consider all comments received. The District has considered all comments received before taking final action.

Rule 20.3(d)(5)-Emission Offsets

This provision requires that emission offsets be provided for projects that result in an emission increase of any federal nonattainment criteria pollutant or its precursors, which exceed new major source or major modification thresholds. The District is a federal nonattainment area only for ozone. Therefore, offsets are potentially only required for NO_x and VOC emissions, as ozone precursors. For the PPEC, VOC annual emissions are limited to below the major stationary source thresholds by the FDOC permit conditions. Therefore, offsets are only required for NO_x emissions. The emission increase of NO_x is 70.41 tons per year for this project. An offset ratio of 1.2 to 1 is required [Rule 20.3(d)(8)(i)(B)], so a total of 84.49 tons per year of NO_x emission offsets will be required. The offsets must be surrendered to the District prior to the initial startup of the equipment for which they are required [Rule 20.1(d)(5)(iii)]. Offsets may be actual emission reductions, stationary source Class A emission reduction credits (ERCs) issued under District Rules 26.0-26.10, or mobile source emission reduction credits (MERCs) issued under District Rule 27 (if approved by ARB and EPA.). The Applicant has agreed to surrender Class A ERCs sufficient to provide all the required offsets for the project prior to the initial operation of the first turbine.

The Applicant currently owns ERCs representing 54.9 tons per year of NO_x emission offsets and ERCs representing 70.3 tons of VOC emission offsets. Under District Rule 20.1

(d)(v)(6), the VOC ERCs are discounted by a ratio of 2 to 1 when used to provide NOx emission offsets. The VOC ERCs owned by the applicant thus represent 35.15 tons of NOx emission offsets. Therefore, the Applicant either owns the equivalent of 90.05 tons of NOx emission offsets, which is sufficient to provide the 84.5 tons of NOx emission offsets required. The ERCs owned by the Applicant are listed in Appendix D.

Rule 20.3(e)(1) – Compliance Certification

This rule requires that, prior to receiving an Authority to Construct (or Final Determination of Compliance), an applicant for any new or modified stationary source required to satisfy the LAER provisions of Rule 20.3(d)(1) or the major source offset requirement of Rule 20.3(d)(8) shall certify that all major sources operated by the applicant in the state are in compliance with all applicable emissions limitations and standards under the federal Clean Air Act. The applicant, Pio Pico Energy Center, LLC, does not own or operate any other major stationary sources in California. A fund managed by Energy Investors Funds Management, LLC (EIF) indirectly owns PPEC. Other funds managed by EIF also indirectly own, control, and operate two major stationary sources in the state, the Burney Forest Power and the Panoche Energy Center. The required compliance certification for all major sources in the state has been submitted to the District.

Rule 20.3(e)(2) – Alternative Siting and Alternatives Analysis

The Applicant has provided an analysis of various alternatives to the project as part of the application for a CEC license (CEC Docket No. 11-AFC-01). This analysis included a no project alternative, alternative sites, and alternative technologies. The CEC further analyzed the alternatives provided by the Applicant in their Preliminary Staff Assessment (CEC-700-2012-001-PSA, February, 2012). Since all of San Diego County is currently classified as nonattainment for ozone, an alternative location within San Diego would not avoid the project being located in a non-attainment area.

Rule 20.5 – Power Plants

This rule requires that the District submit Preliminary and Final Determinations of Compliance reports to the California Energy Commission (CEC). The Final Determination

of Compliance (FDOC) is equivalent to a District Authority to Construct. This FDOC will be submitted to the CEC.

DISTRICT PROHIBITORY RULES

Rule 50 – Visible Emissions

This rule limits air contaminants emissions into the atmosphere of a shade darker than Ringlemann 1 (20% opacity) to not more than an aggregate of three minutes in any consecutive sixty-minute period.

Based on the proposed equipment and the type of fuel to be used (natural gas), no visible emissions at or above this level are expected during operation of the power plant.

Rule 51 – Nuisance

This rule prohibits the discharge of air contaminants that cause or have a tendency to cause injury, nuisance, annoyance to people and/or the public or damage to any business or property.

No nuisance or complaints are expected from this type of equipment.

Rule 53 – Specific Air Contaminants

This rule limits emissions of sulfur compounds (calculated as SO₂) to less than or equal to 0.05% (500 ppm) by volume, on a dry basis. The rule also limits particulate matter emissions from gaseous fuel combustion to less than or equal 0.1 grains per dry standard cubic foot of exhaust calculated at 12% CO₂.

Sulfur Compounds

The Applicant proposes to use Public Utilities Commission (PUC) quality natural gas sold in San Diego County. Because of the low sulfur content of the fuel, the plant is expected to comply with the sulfur emission requirements of Rule 53. The fuel is expected to have a sulfur content less than 0.75 grains per 100 dry standard cubic foot (gr/100 dscf).

Using an F-Factor of 8710 standard cubic feet of exhaust gas per million Btu of heat input for natural gas combustion at 0% O₂ in the exhaust, assuming all sulfur in the fuel is converted into SO₂, the concentration by volume of SO₂ in the exhaust gas is:

SO₂ concentration = (0.75 grain / 100 scf fuel) x (11b SO₂ / 7000 grain) x (385 scf SO₂ / 64 lb SO₂) x (1 scf fuel / 1015 x 10⁻⁶ MMBtu) x (1MMBtu / 8710 dscf of exhaust) x (10⁶) = 0.72 ppm SO₂ by volume.

This is well below the Rule 53 limit of 500 ppm SO₂ by volume. Therefore, the project is expected to comply with this rule.

Particulates

Using an F-Factor of 198.025 standard cubic feet of exhaust per pound of natural gas combusted @ 12% CO₂, a maximum natural gas usage of 40,035 lbs /hr, and an estimated maximum particulate matter emission rate of 5.5 lbs/hr, combustion particulate at maximum load are estimated to be:

Grain loading = [(5.5 lbs/hr)(7,000 gr/lb)] / [(198.025 scf/lb fuel)(40,035 lbs fuel/hr)] = 0.005 gr/dscf

This is well below the Rule 53 emission limit of 0.1 gr/dscf. Therefore the plant is expected comply with this rule.

Rule 68 –Oxides of Nitrogen from Fuel Burning Equipment

This rule limits NOx emissions from any natural gas fueled combustion equipment to less than 125 ppmvd calculated at 3% oxygen. However, this equipment is subject to the more stringent requirements of Rule 69.3 and Rule 69.3.1 and is exempt from Rule 68.

Rule 69.3-Stationary Gas Turbines – Reasonably Available Control Technology

This rule limits NOx emissions from combustion turbines fueled with natural gas greater than 0.3 MW to 42 ppmvd at 15% oxygen. Equipment is exempt from the standard during 120-minute startup and shutdown periods.

The combustion turbines for this project will be equipped with water injection for the combustors and SCR controls for NOx. Proposed permit conditions limit NOx emissions to 2.5 ppmvd during normal operations, which is far below the 42 ppmvd rule standard. Maximum durations of startups and shutdowns (30 minutes for startup and 11 minutes for shutdown) are shorter than Rule 69.3 requirements. However, commissioning is still subject to the rule standards. The FDOC contains conditions to limit emissions below the emissions levels specified in Rule 69.3 (excluding startups and shutdown as defined in Rule 69.3). A CEMS will monitor emissions during combustion turbine operations.

Rule 69.3.1 – Stationary Gas Turbines – Best Available Retrofit Control Technology

This rule limits NOx emissions from combustion turbines greater than 10 MW to $15 \times (E/25)$ ppmvd when operating uncontrolled and $9 \times (E/25)$ ppmvd at 15% oxygen when operating with add-on emission controls and averaged over a one-hour period, where E is the thermal efficiency of the unit based on the higher heating value of the fuel. The rule also specifies monitoring and record keeping requirements. Startups, shutdowns, and fuel changes are defined by the rule and excluded from compliance with these limits. Simple-cycle turbines are exempt from the standards during 120-minute startup and shutdown periods.

The thermal efficiency for each turbine is 38.7%. Therefore the maximum allowable uncontrolled NOx concentration is 23.2 ppmvd based on a 1-hour averaging period at 15% oxygen and the maximum allowable controlled NOx concentration is 13.9 ppmvd. The uncontrolled concentration limit would only be applicable prior to installation of the SCR system.

The combustion turbines for this project will be equipped with water injection for the combustors and SCR controls for NOx. The FDOC permit conditions limit NOx emissions

to 2.5 ppmvd during normal operations, which is far below the 13.9 ppmvd rule standard. Maximum durations of startups and shutdowns (30 minutes for startup and 11 minutes for shutdown) are shorter than Rule 69.3.1 requirements. However, commissioning is still subject to the rule standards. The FDOC will contain conditions to limit emissions below the emissions levels specified in Rule 69.3.1 (excluding startups and shutdown as defined in Rule 69.3.1). A CEMS will monitor emissions during combustion turbine operations.

Rule 1200 – Toxic Air Contaminants

Rule 1200, New Source Review for Toxic Air Contaminants, requires that a Health Risk Assessment (HRA) be performed if the potential to emit toxic air contaminants will increase. A detailed HRA is necessary if toxics emissions exceed District de minimis levels. Toxic Best Available Control Technology (TBACT) must be installed if the HRA shows a cancer risk greater than one in a million at a receptor where a person could be reasonably anticipated to be exposed. The cancer risk is based on a 70-year exposure for a residence and a shorter exposure time for occupational workers. Additional requirements apply if the cancer risk is expected to exceed ten in a million.

An HRA, which was reviewed by the District, was performed using EPA AP-42 emission factors and California Air Toxics Emission Factors (CATEF) for toxic air contaminant emissions from the project for normal operations. The emissions from the operation of the three combustion turbines were considered. The HRA performed shows that the incremental cancer risk is 0.094 in a million for exposed residents and 0.014 for exposed workers for 500 startups per year. The acute and chronic incremental health impacts measured by the Health Hazard Index (HHI) are also all less than 1.0 at the point of maximum impact (0.011, 0.043, and 0.11 for the chronic, 8-hour, and acute HHIs, respectively) and, therefore, meet Rule 1200 requirements. Although TBACT is not required since the maximum cancer risk is less than one in a million, the oxidation catalyst installed as BACT for CO and VOC emissions also significantly reduces toxic air contaminant emissions and would be considered TBACT for this project—if TBACT had been required. It should be noted that, although the health risk assessment is based on 4337.5 hours of operation for each turbine (4000 hours of normal operation and 500 startups and shutdowns) the annual incremental residential cancer risk

would not exceed 0.2 in a million for 8760 hours of operation for each turbine nor would the chronic HHI exceed 0.025. The health risk assessment of this project is further discussed in Appendix B of this document.

Regulation XIV – Title V Operating Permits

The Applicant will submit an application for Title V Operating Permit for this project.

STATE REGULATIONS IMPLEMENTED BY THE DISTRICT

Health and Safety Code §42301.6

This section of the state Health and Safety Code requires the District to notify parents of students at a school if a new source of air pollution is within a 1000 feet of the boundary of that school. The District has determined that the PPEC is not within 1000 feet of any school boundary.

NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

The PPEC is not a major source of hazardous air pollutants (HAPs) based on the potential to emit over the 10 ton per year major source threshold for a single HAP or the 25 ton per year threshold for all HAPs combined. Estimated total emissions of all toxic air contaminants, calculated using EPA (AP-42) emission factors were about 5.41 tons per year. Therefore, equipment at the PPEC is not subject to NESHAPS applicable to major stationary sources of HAPs.

NEW SOURCE PERFORMANCE STANDARDS (NSPS)

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

This new source performance standard requires stationary combustion turbines with a heat input equal to or greater than 10 MMBtu/hour based on the high heating value of the fuel to comply with NOx and SOx emission standards.

Sections 60.4320 and 60.4350(b)(1) require new combustion turbines firing natural gas with a rated heat input greater than 850 MMBtu/hour and using CEMS to comply with a NOx

standard of 15 ppmvd at 15% O₂ averaged over each four operating hours, or alternatively, a standard of 0.42 pounds per megawatt hour (lb/MW-h) during normal operations.

With SCR as postcombustion emission control, NO_x emissions from this combustion turbine are controlled to 2.5 ppmvd at 15% O₂ during normal operation. Assuming NO_x emission concentration during startup is 23.1 ppmvd at 15% O₂, NO_x emission concentration during shut down is 16.8 ppmvd at 15% O₂, the NO_x emission concentration averaged over a 4-hour period that has four startups (2 hours of startup), three shutdowns (0.6 hours of shutdown) and 1.45 hours of normal operation is:

$$\text{NO}_x \text{ concentration} = [23.1 \text{ ppm} \times (2 \text{ startups hours})] \times [16.8 \text{ ppm} \times (0.6 \text{ shutdowns hours})] + (2.5 \text{ ppm} \times 1.45 \text{ normal operation hours}) / (4 \text{ hours}) = 14.8 \text{ ppm}$$

Therefore, the turbine is expected to comply with the NO_x emission standard of this subpart. Compliance is required through the FDOC permit conditions.

Section 60.4330 prohibits sulfur dioxide emissions from combustion turbine in excess of 0.90 lbs/MW-hour gross output or 0.060 lbs/MMBtu heat input. SO₂ emission from the combustion turbines of this project is 0.002 lbs/MMBtu.

$$\text{SO}_2 \text{ emission rates} = (1.9 \text{ lbs/hr}) \times (1 \text{ hour} / 903 \text{ MMBtu}) = 0.002 \text{ lbs/MMBtu}$$

Therefore, the turbine is in compliance with the SO₂ limit requirement.

Section 60.4335(b) requires turbines using water injection or steam injection to install, calibrate, maintain and operate a continuous emission monitoring system (CEMS) consisting of a NO_x monitor and a diluent gas (oxygen) or carbon dioxide monitor to determine the hourly NO_x emission rate in ppmvd or lb/MW-h. Turbines complying with concentration limit based standards must install calibrate, maintain and operate a fuel flow meter to measure heat input. Turbines complying with output-based standards must install, calibrate, maintain and operate a watt meter to measure the gross electrical output in megawatt-hours.

This combustion turbine will be equipped with a CEMS to monitor NO_x and CO emissions in parts per million and oxygen content in the exhaust gas.

Section 60.4345 requires the CEMS to be installed and certified according to Performance Specification 2 in 40 CFR Part 60 Appendix B, or according to Appendix A of 40 CFR Part 75, and each fuel meter and watt meter installed, calibrated, maintained and operated according to the manufacturer's instructions. The turbine operator must develop and keep on site a QA plan for all continuous monitoring equipment. The CEMS for this combustion turbine will be required to go through Relative Accuracy Test Audit (RATA) and all other required certification tests in accordance with 40 CFR Part 75 Appendix A and B. The FDOC permit requires continuous monitoring equipment meeting these requirements to be installed, calibrated, and maintained.

Section 60.4350 requires turbine operator to use data from the CEMS to identify excess emissions in accordance with specific procedures. These requirements are included in the FDOC permit conditions.

Section 60.4365 exempts the requirement to monitor total sulfur content of the fuel if it can be demonstrated through a valid purchase contract, tariff sheet, or transportation contract for the fuel that total sulfur content of natural gas used is 20 grains of sulfur or less per 100 standard cubic feet. Sulfur content of natural gas fuel used in this turbine is 0.75 grains per 100 cubic feet of gas or less. Quarterly records of natural gas sulfur content are to be kept on site to satisfy this requirement.

Section 60.4375 requires submittal of reports of excess emissions and monitor downtime for all periods of unit operation, including startup, shutdown and malfunction. The FDOC conditions include a condition to satisfy these requirements. Annual source tests are not required pursuant to Subpart KKKK for combustion turbine equipment with a CEMS. Because this combustion turbine is subject to a NO_x limit that is six times more stringent than the NO_x limit of this NSPS, excess emissions are not expected to occur. In addition, reports on the CEMS system are to be submitted in accordance with District Rule 19.2

requirements and CEMS protocol approved by the District and excess emissions and monitoring reports are required by the FDOC permit conditions.

Section 60.4400 requires that an initial performance test and annual NOx performance test be conducted in accordance with certain requirements. Annual source tests are not required pursuant to Subpart KKKK for combustion turbine equipment with CEMS. This combustion turbine is required to be source tested initially to demonstrate compliance with NOx, CO, VOC, and ammonia emission standards. The source tests are to be conducted in accordance with the applicable EPA test methods and applicable requirements of 40 CFR 75 Appendix B. The FDOC permit contains conditions satisfying these requirements of Subpart KKKK.

ACID RAIN

40 CFR Part 72- Subpart A – Acid Rain Program

This part establishes general provisions and operating permit program requirements for sources and units affected under the Acid Rain program, pursuant to Title IV of the Clean Air Act. The combustion turbines of this project are affected by this Acid Rain Program as a utility unit in accordance with Section 72.6(a).

40 CFR Part 72- Subpart C – Acid Rain Permit Applications

This subpart requires any source with an affected unit to submit a complete Acid Rain permit application by the applicable deadline. Requirement for submittal of Acid Rain Program application is included in the FDOC permit conditions. The applicant submitted an acid rain application to EPA on September 14, 2011.

40 CFR Part 73- Sulfur Dioxide Allowance System

This part establishes the requirements and procedures for the allocation of sulfur dioxide emission allowances; the tracking, holding and transfer of allowances; the deduction of allowances for purposes of compliance and for purposes of offsetting excess emissions pursuant to Parts 72; the sale of allowances through EPA-sponsored auctions and a direct sale; the application for allowances from the Conservation and Renewable Energy Reserve; and the application for allowances for desulfurization of fuel by small diesel refineries.

Requirements from this part will be included in evaluation for the Acid Rain program application required by Part 72.

40CFR Part 75 – Continuous Emission Monitoring

This part established requirements for the monitoring, recordkeeping, and reporting of SO₂, NO_x, and CO₂ emissions, volumetric flow, and opacity data from emission units under the Acid Rain Program. The regulations include general requirements for the installation, certification, operation, and maintenance of continuous emission or opacity monitoring systems, certification tests and procedures, and quality assurance tests and procedures. Subpart B on Monitoring Provisions established general operating requirements for the monitoring systems. Subpart C establishes requirements on initial certification and recertification procedures. Subparts F and G establish requirements on recordkeeping and reporting requirements. All applicable requirements are included in the FDOC permit conditions.



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Attachment E

Emissions Summary Data

Combustion Turbine Generator Emissions—Standard Operations Maximum Hourly Emissions

The applicant has not applied to change the normal operations hourly emission limits for NO_x, CO, and VOCs in the original FDOC and the BACT evaluation for the FDOC Amendment does not indicate any change is warranted, so the increased heat input for the FDOC Amendment does not affect the potential maximum hourly emissions of these pollutants from the turbines. Hourly emissions of SO_x are not directly limited by permit condition and depend on the sulfur content of the fuel, which is limited, and the maximum fuel input so its maximum potential emissions do increase with the increased fuel use associated with the higher heat input. Based on a revised BACT determination for PM₁₀ and PM_{2.5} as described in Section 6, the emission rate for particulate emissions will be reduced to 5.0 lb/hr for a single turbine. Table 1a contains revised emission rates for normal operation. Emissions were calculated using the same procedures as described in the original FDOC except 1000 MMBtu/hr heat input used for calculating SO₂ emissions.

Pollutant	Concentration, ppmvd @15% O ₂	Emission Rate at Average Peak Ambient Temperature, lb/hr
NO _x	2.5 (1-hour average)	8.18
CO	4.0 (1-hour average)	7.97
VOCs	2.0 (1-hour average)	2.28
PM ₁₀	N/A	5.0
PM _{2.5}	N/A	5.0
SO _x	N/A	2.1

The applicant has not applied to change the startup and shutdown hourly emission limits for NO_x, CO, and VOCs in the original FDOC and the BACT evaluation for the FDOC Amendment does not indicate any change is warranted, so the increased heat input for the FDOC Amendment does not affect the potential maximum hourly emissions of these pollutants from the turbines during startups and shutdowns. Startup and shutdown emissions for particulate matter and SO_x are reduced and increased, respectively during startup and shutdown periods. Permit conditions will ensure that emission levels contained below are not exceeded.

Pollutant	Startup Emissions, lbs/hr	Shutdown Emissions, lbs/hr	Startup and Shutdown, lbs/hr
NO _x	26.63	12.68	31.13
CO	21.84	53.51	67.38
VOCs	5.81	4.86	8.39
PM ₁₀	5.0	5.0	5.0
PM _{2.5}	5.0	5.0	5.0
SO _x	<2.1	<2.1	<2.1

Maximum Daily Emissions

Maximum daily emissions do not change due to this modification except for the small increase in SOx emissions and decrease in particulate emissions. The same assumptions and calculation procedures as described in the original FDOC were utilized for calculations except the use of 1000 MMBtu/hr heat input to calculate SOx emissions and the use of 5.0 lb/hr for each turbine's particulate emissions.

Table 1c – Expected Maximum Turbine Daily Emissions		
Pollutant	Emissions from Each Turbine lbs/day	Emissions from Three Turbines lbs/day
NOx	288.12	864.36
CO	428.92	1286.76
VOCs	79.16	237.48
PM10	120	360
PM2.5	120	360
SOx	50.4	151.3

Maximum Annual Emissions

Maximum annual emissions for the combustion turbines will be limited by permit conditions to the levels specified in the original FDOC, which were based on an expected maximum of 4335 hours of operation, including 500 hours of startups and 500 hours of shutdowns, at the maximum allowed hourly emission rates. However, only emissions, not hours of operation, are limited in the original FDOC (and the FDOC Amendment), and the actual number of hours of operation allowed by the annual emission limits would depend on actual levels of hourly emissions for the various pollutants, which would likely be below their potential maximums. The heat input increase of the FDOC Amendment might be expected to reduce the maximum expected hours of operation by about 10% from the original FDOC if the annual average sulfur content remained unchanged based on the lowest level allowed by SOx emissions since SOx hourly emissions increase with the increase in heat input. For PM₁₀ and PM_{2.5}, the BACT evaluation of the FDOC Amendment resulted in reducing the annual average emission rate to 3.5 lb/hr per turbine from the 5.5 lb/hr in the original FDOC. This could allow about 6800 hours of operation at the maximum annual average emission rate if not constrained by the emission limit for another pollutant since the annual limit of contained in the original FDOC of 35.8 ton/yr has not been changed. For comparison to the original FDOC, Table 1d assumes 4335 hours of operation per year, as assumed in the original FDOC, with sufficiently low sulfur content in the fuel to allow SOx emissions to remain below the original FDOC annual limit, which has not been changed. However Table 1d does reflect an average PM₁₀ and PM_{2.5} emission rate of 3.5 lb/hr per turbine.

Pollutant	Emissions from Each Turbine tons/yr	Emissions from Three Turbines tons/yr
NOx	23.47	70.41
CO	32.13	96.39
VOCs	6.47	19.41
PM10	7.59	22.76
PM2.5	7.59	22.76
SOx	1.37	4.12

Wet Surface Air Cooler Emissions

This application will not affect emissions from the WSAC. However, the revised permit conditions for the FDOC Amendment explicitly limit particulate emissions of the WSACs to 1.43 tons per year, which were the maximum expected emissions calculated in the FDOC based on the maximum allowed total dissolved solids in the recirculating air-side cooling water, maximum recirculating air-side cooling water flow rate, the allowed drift percentage, all twelve fans operating at their maximum capacity (maximum forced air flow), and 4335 hours of operation.

Project Emissions—Standard Operations

Permitted emissions from the project during standard operations will not change due to this modification except as previously described. Tables 2a and 2b list expected total emissions for the project as calculated in the original FDOC and described in this FDOC Amendment. Table 2c lists total annual emissions allowed by permit conditions.

Pollutant	Turbines Total Daily Emissions, lbs/day	WSAC Daily Emissions, lbs/day	Project Total Daily Emissions, lbs/day
NOx	864.36	0	864.36
CO	1286.76	0	1286.76
VOCs	237.48	0	237.48
PM10	360	15.8	375.8
PM2.5	360	15.8	375.8
SOx	151.3	0	151.3

Pollutant	Turbines Total Annual Emissions, tons/yr	WSAC Annual Emissions, tons/yr	Project Total Annual Emissions, tons/yr
NOx	70.41	0	70.41
CO	96.39	0	96.29
VOCs	19.41	0	19.41
PM10	22.76	1.43	24.19
PM2.5	22.76	1.43	24.19
SOx	4.12	0	4.12

Table 2c – Allowed Project Total Annual Emissions			
Pollutant	Turbines Total Annual Emissions, tons/yr	WSAC Annual Emissions, tons/yr	Project Total Annual Emissions, tons/yr
NOx	70.41	0	70.41
CO	96.39	0	96.29
VOCs	19.41	0	19.41
PM10	35.76	1.43	37.19
PM2.5	35.76	1.43	37.19
SOx	4.12	0	4.12

Project Emissions—Toxic Emissions

Unlike previously described emissions, toxic emissions are not limited directly by permit condition and therefore are assumed to change based on the increase in heat input. To calculate the increases, it was assumed that VOC emissions would not increase during either startup and shutdown or normal operation since these are limited by permit conditions. It was further assumed that toxic emissions during startup and shutdown and commissioning are calculated on a pounds per million Btu basis emission factor that is elevated above the normal operation emission factor based on the ratio of VOC emissions expressed in units of pounds per million Btu during each mode of operation.

The full calculation sheet can be seen in Appendix A of this FDOC Amendment. These emissions were used for the revised health risk assessment described in Section 6 and contained in Appendix B.

Combustion Turbine Generator Emissions—Commissioning Period

Emissions during the turbine commissioning periods are expected to change minimally based on this modification. Particulate emissions will decrease due to a decrease in allowed particulate emissions that was previously discussed. SOx emissions may increase slightly if heat inputs during commissioning are higher. However, they will not exceed the maximum steady state emission levels previously described for the combustion turbines. NOx, VOC, and CO emissions will not increase beyond the emissions calculated in the original FDOC because NOx and CO emissions are limited by permit conditions to not exceed these amounts (and VOC emissions are assumed to correlate with CO emissions, so no increase to CO emissions ensures no increase to VOC emissions as well). Additionally, the applicant requested that NOx emissions during the commissioning period be limited to 150 lb/hr for all 3 turbines rather than 50 lb/hr for each turbine individually. This will not affect hourly and daily emission rates for the project. However, it will affect potential total NOx emissions during the commissioning periods for all three turbines because they may be commissioned separately, resulting in emissions from each turbine allowed of up to 150 lb/hr. These changes are reflected in Tables 3a and 3b. Total annual emissions from the turbines will not increase, however, since commissioning emissions are

included in the annual maximums specified by permit conditions and these limits are not being increased.

Pollutant	Emissions from Each Turbine lbs/hr	Emissions from Three Turbines lbs/hr
NOx	150	150
CO	75	225
VOCs	5	15
PM10	5.0	15.0
PM2.5	5.0	15.0
SOx	<2.1	<6.3

Pollutant	Emissions from Each Turbine lbs/day	Emissions from Three Turbines lbs/day
NOx	3600	3600
CO	1800	5400
VOCs	120	360
PM10	120	360
PM2.5	120	360
SOx	<50.4	<151.3

Pollutant	Emissions from Each Turbine tons	Emissions from Three Turbines tons
NOx	8.4	25.2
CO	4.2	12.6
VOCs	0.28	0.84
PM10	0.31	0.93
PM2.5	0.31	0.93
SOx	<0.12	<0.36

6.0 Rules Analysis

6.1 District PSD and NSR Rules

~~This section will discuss the implications to the PSD and NSR discussions contained in the original FDOC due to the proposed modification. For full discussion of the issues, see the original FDOC.~~

Rule 20.1(e)(35) – Major Stationary Source

~~This modification does not affect the major source status of the stationary source – it is still considered a major source of NOx but not a major source for any of the other criteria pollutants.~~

Table A-1: Toxics Emission Factors

Pollutant	EF (lb/MMBtu)	Source	Controlled EF (lb/MMBtu)	Max non-commissioning hour EF (lb/MMBtu)	Startup-Shutdown hour EF (lb/MMBtu)	Max commissioning EF (lb/MMBtu)	Startup emission factor (lb/MMBtu)	Shutdown EF (lb/MMBtu)
Ammonia	6.81E-03	District/AP-42	6.81E-03	6.81E-03	6.81E-03	6.81E-03	6.81E-03	6.81E-03
Propylene	7.63E-04	CATEF	3.82E-04	3.28E-03	2.03E-03	7.08E-03	1.56E-03	1.76E-02
Acetaldehyde	4.00E-05	District/AP-42	2.00E-05	1.72E-04	1.06E-04	3.71E-04	8.17E-05	9.20E-04
Acrolein	6.40E-06	District/AP-42	3.20E-06	2.75E-05	1.70E-05	5.94E-05	1.31E-05	1.47E-04
Benzene	1.20E-05	District/AP-42	6.00E-06	5.15E-05	3.19E-05	1.11E-04	2.45E-05	2.76E-04
1,3-Butadiene	4.30E-07	District/AP-42	2.15E-07	1.85E-06	1.14E-06	3.99E-06	8.79E-07	9.89E-06
Ethylbenzene	3.20E-05	District/AP-42	1.60E-05	1.37E-04	8.50E-05	2.97E-04	6.54E-05	7.36E-04
Formaldehyde	9.08E-04	CATEF	4.54E-04	3.90E-03	2.41E-03	8.42E-03	1.86E-03	2.09E-02
n-Hexane	2.56E-04	CATEF	1.28E-04	1.10E-03	6.81E-04	2.38E-03	5.24E-04	5.90E-03
Naphthalene	1.64E-06	District/AP-42	8.22E-07	7.06E-06	4.37E-06	1.53E-05	3.36E-06	3.78E-05
PAH Total (individually below)	2.30E-06	CATEF	1.15E-06	9.87E-06	6.10E-06	2.13E-05	4.69E-06	5.29E-05
Acenaphthene	1.88E-08	CATEF	9.41E-09	8.08E-08	5.00E-08	1.75E-07	3.84E-08	4.33E-07
Acenaphthylene	1.46E-08	CATEF	7.28E-09	6.25E-08	3.87E-08	1.35E-07	2.97E-08	3.35E-07
Anthracene	3.35E-08	CATEF	1.67E-08	1.44E-07	8.89E-08	3.11E-07	6.84E-08	7.70E-07
Benzo(a)anthracene	2.24E-08	CATEF	1.12E-08	9.61E-08	5.94E-08	2.08E-07	4.57E-08	5.15E-07
Benzo(e)pyrene	1.38E-08	CATEF	6.88E-09	5.91E-08	3.66E-08	1.28E-07	2.81E-08	3.17E-07
Benzo(b)fluoranthrene	5.39E-10	CATEF	2.69E-10	2.31E-09	1.43E-09	5.00E-09	1.10E-09	1.24E-08
Benzo(k)fluoranthrene	1.12E-08	CATEF	5.59E-09	4.80E-08	2.97E-08	1.04E-07	2.29E-08	2.57E-07
Benzo(g,h,i)perylene	1.09E-08	CATEF	5.45E-09	4.68E-08	2.89E-08	1.01E-07	2.23E-08	2.51E-07
Chrysene	1.36E-08	CATEF	6.78E-09	5.82E-08	3.60E-08	1.26E-07	2.77E-08	3.12E-07
Dibenz(a,h)anthracene	2.50E-08	CATEF	1.25E-08	1.07E-07	6.63E-08	2.32E-07	5.10E-08	5.74E-07
Fluoranthene	2.33E-08	CATEF	1.16E-08	9.99E-08	6.18E-08	2.16E-07	4.75E-08	5.35E-07
Indeno(1,2,3-cd)pyrene	4.28E-08	CATEF	2.14E-08	1.84E-07	1.14E-07	3.97E-07	8.74E-08	9.84E-07
Phenanthrene	5.74E-08	CATEF	2.87E-08	2.47E-07	1.53E-07	5.33E-07	1.17E-07	1.32E-06
Pyrene	3.10E-07	CATEF	1.55E-07	1.33E-06	8.23E-07	2.88E-06	6.33E-07	7.13E-06
Toluene	2.74E-08	CATEF	1.37E-08	1.18E-07	7.28E-08	2.54E-07	5.60E-08	6.31E-07
Xylenes	1.30E-04	District/AP-42	6.50E-05	5.58E-04	3.45E-04	1.21E-03	2.66E-04	2.99E-03
	6.40E-05	District/AP-42	3.20E-05	2.75E-04	1.70E-04	5.94E-04	1.31E-04	1.47E-03

See notes after Table A-3.

Table A-2: Single Turbine Toxic Emission Calculations

Pollutant	Max steady state (lb/hr)	Startup (lb/event)	Shutdown (lb/event)	Max non-commissioning hour (lb/hr)	Startup/Shutdown (lb/hr)	Max Commissioning/Sync-idle (lb/hr)	Max Acute (lb/hr)	Annual (commissioning year) (lb/yr)	Annual (non-commissioning year) (lb/yr)
Ammonia	6.81E+00	2.17E+00	3.00E-01	3.79E+00	4.68E+00	8.77E-01	6.81E+00	2.86E+04	2.85E+04
Propylene	3.82E-01	4.97E-01	7.73E-01	1.82E+00	1.39E+00	9.12E-01	1.82E+00	2.26E+03	2.16E+03
Acetaldehyde	2.00E-02	2.60E-02	4.05E-02	9.56E-02	7.31E-02	4.78E-02	9.56E-02	1.19E+02	1.13E+02
Acrolein	3.20E-03	4.16E-03	6.48E-03	1.53E-02	1.17E-02	7.64E-03	1.53E-02	1.90E+01	1.81E+01
Benzene	6.00E-03	7.81E-03	1.22E-02	2.87E-02	2.19E-02	1.43E-02	2.87E-02	3.56E+01	3.40E+01
1,3-Butadiene	2.15E-04	2.80E-04	4.36E-04	1.03E-03	7.85E-04	5.14E-04	1.03E-03	1.28E+00	1.22E+00
Ethylbenzene	1.60E-02	2.08E-02	3.24E-02	7.65E-02	5.84E-02	3.82E-02	7.65E-02	9.49E+01	9.06E+01
Formaldehyde	4.54E-01	5.91E-01	9.20E-01	2.17E+00	1.66E+00	1.08E+00	2.17E+00	2.69E+03	2.57E+03
n-Hexane	1.28E-01	1.67E-01	2.60E-01	6.13E-01	4.68E-01	3.06E-01	6.13E-01	7.60E+02	7.26E+02
Naphthalene	8.22E-04	1.07E-03	1.66E-03	3.93E-03	3.00E-03	1.96E-03	3.93E-03	4.87E+00	4.65E+00
PAH Total (individually below)	1.15E-03	1.50E-03	2.33E-03	5.49E-03	4.20E-03	2.74E-03	5.49E-03	6.81E+00	6.51E+00
Acenaphthene	9.41E-06	1.22E-05	1.91E-05	4.50E-05	3.44E-05	2.25E-05	4.50E-05	5.58E-02	5.33E-02
Acenaphthylene	7.28E-06	9.47E-06	1.47E-05	3.48E-05	2.66E-05	1.74E-05	3.48E-05	4.32E-02	4.12E-02
Anthracene	1.67E-05	2.18E-05	3.39E-05	8.00E-05	6.11E-05	4.00E-05	8.00E-05	9.92E-02	9.48E-02
Benzo(a)anthracene	1.12E-05	1.46E-05	2.27E-05	5.35E-05	4.09E-05	2.67E-05	5.35E-05	6.64E-02	6.34E-02
Benzo(e)pyrene	2.69E-07	3.51E-07	5.46E-07	1.29E-06	9.84E-07	6.43E-07	1.29E-06	1.60E-03	1.53E-03
Benzo(b)fluoranthrene	5.59E-06	7.28E-06	1.13E-05	2.67E-05	2.04E-05	1.34E-05	2.67E-05	3.32E-02	3.17E-02
Benzo(k)fluoranthrene	5.45E-06	7.09E-06	1.10E-05	2.60E-05	1.99E-05	1.30E-05	2.60E-05	3.23E-02	3.08E-02
Benzo(g,h,i)perylene	6.78E-06	8.83E-06	1.37E-05	3.24E-05	2.48E-05	1.62E-05	3.24E-05	4.02E-02	3.84E-02
Chrysene	1.25E-05	1.62E-05	2.53E-05	5.96E-05	4.56E-05	2.98E-05	5.96E-05	7.40E-02	7.07E-02
Dibenz(a,h)anthracene	1.16E-05	1.51E-05	2.36E-05	5.56E-05	4.25E-05	2.78E-05	5.56E-05	6.90E-02	6.59E-02
Fluoranthene	2.14E-05	2.78E-05	4.33E-05	1.02E-04	7.81E-05	5.11E-05	1.02E-04	1.27E-01	1.21E-01
Fluorene	2.87E-05	3.74E-05	5.82E-05	1.37E-04	1.05E-04	6.86E-05	1.37E-04	1.70E-01	1.63E-01
Indeno(1,2,3-cd)pyrene	1.16E-05	1.51E-05	2.36E-05	5.56E-05	4.25E-05	2.78E-05	5.56E-05	6.90E-02	6.59E-02
Phenanthrene	1.55E-04	2.02E-04	3.14E-04	7.41E-04	5.66E-04	3.70E-04	7.41E-04	9.19E-01	8.78E-01
Pyrene	1.37E-05	1.78E-05	2.78E-05	6.55E-05	5.01E-05	3.28E-05	6.55E-05	8.13E-02	7.77E-02
Toluene	6.50E-02	8.46E-02	1.32E-01	3.11E-01	2.37E-01	1.55E-01	3.11E-01	3.86E+02	3.68E+02
Xylenes	3.20E-02	4.16E-02	6.48E-02	1.53E-01	1.17E-01	7.64E-02	1.53E-01	1.90E+02	1.81E+02

See notes after Table A-3.

Table A-3: Combined Three Turbine Toxic Emission Calculations

Pollutant	Max steady state (lb/hr)	Startup (lb/event)	Shutdown (lb/event)	Max non-commissioning hour (lb/hr)	Startup-Shutdown (lb/hr)	Max Commissioning/Sync-idle (lb/hr)	Max Acute (lb/hr)	Annual (commissioning year) (lb/yr)	Annual (non-commissioning year) (lb/yr)
Ammonia	2.04E+01	6.51E+00	9.00E-01	1.14E+01	1.41E+01	2.63E+00	2.04E+01	8.57E+04	8.54E+04
Propylene	1.15E+00	1.49E+00	2.32E+00	5.47E+00	4.18E+00	2.73E+00	5.47E+00	6.79E+03	6.49E+03
Acetaldehyde	6.00E-02	7.81E-02	1.22E-01	2.87E-01	2.19E-01	1.43E-01	2.87E-01	3.56E+02	3.40E+02
Acrolein	9.60E-03	1.25E-02	1.94E-02	4.59E-02	3.51E-02	2.29E-02	4.59E-02	5.69E+01	5.44E+01
Benzene	1.80E-02	2.34E-02	3.65E-02	8.60E-02	6.57E-02	4.30E-02	8.60E-02	1.07E+02	1.02E+02
1,3-Butadiene	6.45E-04	8.39E-04	1.31E-03	3.08E-03	2.36E-03	1.54E-03	3.08E-03	3.83E+00	3.65E+00
Ethylbenzene	4.80E-02	6.25E-02	9.72E-02	2.29E-01	1.75E-01	1.15E-01	2.29E-01	2.85E+02	2.72E+02
Formaldehyde	1.36E+00	1.77E+00	2.76E+00	6.51E+00	4.97E+00	3.25E+00	6.51E+00	8.08E+03	7.71E+03
n-Hexane	3.85E-01	5.01E-01	7.79E-01	1.84E+00	1.40E+00	9.19E-01	1.84E+00	2.28E+03	2.18E+03
Naphthalene	2.47E-03	3.21E-03	4.99E-03	1.18E-02	9.00E-03	5.89E-03	1.18E-02	1.46E+01	1.40E+01
PAH Total (individually below)	3.45E-03	4.49E-03	6.98E-03	1.63E-02	1.26E-02	8.23E-03	1.65E-02	2.04E+01	1.95E+01
Acenaphthene	2.82E-05	3.67E-05	5.72E-05	1.35E-04	1.03E-04	6.74E-05	1.35E-04	1.67E-01	1.60E-01
Acenaphthylene	2.18E-05	2.84E-05	4.42E-05	1.04E-04	7.97E-05	5.21E-05	1.04E-04	1.29E-01	1.24E-01
Anthracene	5.02E-05	6.53E-05	1.02E-04	2.40E-04	1.83E-04	1.20E-04	2.40E-04	2.98E-01	2.84E-01
Benzo(a)anthracene	3.36E-05	4.37E-05	6.80E-05	1.60E-04	1.23E-04	8.02E-05	1.60E-04	1.99E-01	1.90E-01
Benzo(a)pyrene	2.06E-05	2.69E-05	4.18E-05	9.87E-05	7.54E-05	4.93E-05	9.87E-05	1.22E-01	1.17E-01
Benzo(e)pyrene	8.08E-07	1.05E-06	1.64E-06	3.86E-06	2.95E-06	1.93E-06	3.86E-06	4.79E-03	4.58E-03
Benzo(b)fluoranthrene	1.68E-05	2.18E-05	3.40E-05	8.02E-05	6.13E-05	4.01E-05	8.02E-05	9.95E-02	9.51E-02
Benzo(k)fluoranthrene	1.63E-05	2.13E-05	3.31E-05	7.81E-05	5.97E-05	3.90E-05	7.81E-05	9.69E-02	9.25E-02
Benzo(g,h,i)perylene	2.03E-05	2.65E-05	4.12E-05	9.72E-05	7.43E-05	4.86E-05	9.72E-05	1.21E-01	1.15E-01
Chrysene	3.74E-05	4.87E-05	7.58E-05	1.79E-04	1.37E-04	8.94E-05	1.79E-04	2.22E-01	2.12E-01
Dibenz(a,h)anthracene	3.49E-05	4.54E-05	7.07E-05	1.67E-04	1.27E-04	8.34E-05	1.67E-04	2.07E-01	1.98E-01
Fluoranthene	6.42E-05	8.35E-05	1.30E-04	3.07E-04	2.34E-04	1.53E-04	3.07E-04	3.81E-01	3.63E-01
Fluorene	8.61E-05	1.12E-04	1.75E-04	4.12E-04	3.15E-04	2.06E-04	4.12E-04	5.11E-01	4.88E-01
Indeno(1,2,3-cd)pyrene	3.49E-05	4.54E-05	7.07E-05	1.67E-04	1.27E-04	8.34E-05	1.67E-04	2.07E-01	1.98E-01
Phenanthrene	4.65E-04	6.05E-04	9.42E-04	2.22E-03	1.70E-03	1.11E-03	2.22E-03	2.76E+00	2.63E+00
Pyrene	4.11E-05	5.35E-05	8.33E-05	1.97E-04	1.50E-04	9.83E-05	1.97E-04	2.44E-01	2.33E-01
Toluene	1.95E-01	2.54E-01	3.95E-01	9.32E-01	7.12E-01	4.66E-01	9.32E-01	1.16E+03	1.10E+03
Xylenes	9.60E-02	1.25E-01	1.94E-01	4.59E-01	3.51E-01	2.29E-01	4.59E-01	5.69E+02	5.44E+02

- Notes:
- Based on 5 ppm ammonia slip limit.
 - Factors labeled District/AP-42 from District website, profile t10 (except ammonia).
 - Factors labeled CATEF from CARB CATEF database. Mean values were used. For compounds with multiple emission rates provided, the lowest was selected.
 - Controlled emission factor assume 50% control from oxidation catalyst except for ammonia.
 - All VOC emission rates are assumed not to change from original application except for commissioning.
 - Maximum commissioning VOC emissions from original application, heat input from ACECP.
 - Maximum heat input of 1000 MMBtu/hr from steady state calculations.
 - Propylene oxide emission factor in AP-42 data omitted from District factors since based on a non-detection.
 - Startup and shutdown heat inputs from original application (289.27 and 40 MMBtu/event respectively) ratioed up for larger heat input.
 - VOC emission rates of lb VOC/MMBtu calculated using revised heat inputs
 - Ratios of VOC emissions based on lb/MMBtu factors.
 - Emission factors for each mode calculated by multiplying the controlled toxic emission factor by the VOC ratio.
 - Emission rates for each mode calculated by multiplying emission factor by heat input

