

**DOCKET**

**07-AFC-9C**

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RECD. MAY 09 2012

# Canyon Power Plant

(07-AFC-09C)

## Amendment 1

Submitted to the  
**California Energy Commission**

Submitted by  
**Southern California Public Power Authority**

May 2012

With Assistance from

**CH2MHILL**

2485 Natomas Park Drive  
Suite 600  
Sacramento, CA 95833

# Contents

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Section	Page
<b>Contents.....</b>	<b>i</b>
<b>Introduction.....</b>	<b>1-1</b>
1.1    Background .....	1-1
1.2    Description of Proposed Amendment.....	1-1
1.3    Necessity of Proposed Change .....	1-1
1.4    Summary of Environmental Impacts.....	1-1
1.5    Consistency of the Change with the License .....	1-2
<b>Description of Project Change .....</b>	<b>2-1</b>
2.1    Proposed Change .....	2-1
2.2    Necessity of Proposed Change .....	2-1
<b>Environmental Analysis of the Project Change.....</b>	<b>3-1</b>
3.1    Air Quality.....	3-1
3.1.1    Air Quality Regulatory Evaluation.....	3-2
3.1.2    Cumulative Impact Assessment.....	3-4
<b>Proposed Modifications to the Conditions of Certification.....</b>	<b>4-1</b>
Condition of Certification AQ-2 .....	4-1
<b>Potential Effects on the Public and Property Owners .....</b>	<b>5-1</b>
<b>List of Property Owners .....</b>	<b>6-1</b>
<b>References .....</b>	<b>7-1</b>
<b>South Coast Air Quality Management District's Draft Title V Permit.....</b>	<b>7-1</b>
<b>List of Property Owners within 1,000 of the Proposed Project.....</b>	<b>7-2</b>
<b>Attachment</b>	
Attachment 1 – South Coast Air Quality Management District's Draft Title V Permit	
Attachment 2 - List of Property Owners within 1,000 of the Proposed Project	

# Introduction

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## 1.1 Background

On March 17, 2010, the California Energy Commission (CEC) approved and licensed Southern California Public Power Authority's (SCPPA) Canyon Power Plant (CPP) (07-AFC-09). The CPP project is a nominal 200-megawatt simple-cycle power plant located in the City of Anaheim (COA). The project site is a 10-acre parcel located about 3.25 miles northeast of downtown Anaheim at 3071 East Miraloma Avenue. The primary source of process water for the project is reclaimed water supplied from the Orange County Groundwater Replenishment System (GWRS) via a new 2,185-foot-long, 14-inch pipeline utilizing a new offsite booster pump station. There are four new underground 69 kV circuits leaving the site. Two underground circuits interconnect to the existing 69 kV overhead Vermont-Yorba lines across the street from the site and two 69 kV underground circuits that connect to the Dowling-Yorba 69 kV line at East La Palma Avenue. Natural gas for the project is supplied from a new Southern California Gas Company 12-inch, 3,240-foot-long natural gas pipeline that connect into Southern California Gas Company's line L-1218 in East Orangethorpe Avenue. Construction of the project began on April 5, 2010 and commercial operation commence in November 2011.

## 1.2 Description of Proposed Amendment

The purpose of this filing is to request the CEC's approval to amend the CPP air quality Condition of Certification AQ-2 to increase the carbon monoxide start up limit from 6.3 pounds per hour (lb/hr) to 11.6 lb/hr. The proposed CO start up limit is consistent with other similar peaking projects recently permitted by the CEC and South Coast Air Quality Management District (SCAQMD). More detailed information on this proposed change is provided in Section 2.

## 1.3 Necessity of Proposed Change

Sections 1769 (a)(1)(A), (B), and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed revision to the CPP project and whether the revision is based on information known by the petitioner during the certification proceeding. The proposed change is necessary to allow the operation of the CPP turbines in compliance with applicable air quality regulations and permits.

## 1.4 Summary of Environmental Impacts

Section 1769 (a)(1)(E) of the CEC Siting Regulations requires that an analysis be conducted to address impacts the proposed revision may have on the environment and proposed measures to mitigate significant adverse impacts. Section 1769 (a)(1)(F) requires a discussion of the impacts of proposed revision on the facility's ability to comply with applicable laws,

ordinances, regulations, and standards (LORS). Section 3 discusses the potential impacts of the proposed change on the environment, as well as the conformance with applicable LORS.

## 1.5 Consistency of the Change with the License

Section 1769 (a)(1)(D),(F) of the CEC Siting Regulations requires a discussion of the consistency of each proposed project revision with the assumptions, rationale, findings, or other bases of the Final Decision and whether the revision is based on new information that changes or undermines the bases of the final decision. Also required is an explanation of why the change should be permitted. The proposed change does not undermine the assumptions, rationale, findings, or other basis of the Final Decision for the project. In addition, the project amendment as proposed is expected to comply with all applicable LORS.

## SECTION 2

# Description of Project Change

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Consistent with the CEC Siting Regulations Section 1769(a)(1)(A), this section includes a description of the requested project modifications, as well as the necessity for the change.

## 2.1 Proposed Change

During the CPP licensing, the turbine vendor (General Electric – GE) provided emission estimates to SCPPA’s environmental contractor, including a start up emission estimate for CO. These emission estimates formed the basis of the air permit application to the SCAQMD and the AFC to the CEC. The CO start up emission limitation of 6.3 lb/hr was included in Condition AQ-2 (SCAQMD PTC Condition A99.2). During the initial operation of the CPP, several start-ups resulted in the CO start-up emissions exceeding the limit contained in Condition AQ-2. Specifically, on October 21, 2011, Unit 2 recorded CO start up emissions of 6.6 lb/hr, exceeding the limit of 6.3 lb/hr. Unit 4 recorded CO start up emission of 9.5 lb/hr on October 24, 2011. On inspection of the equipment, COA and GE determined that the turbines and emission control systems were operating as designed and that no malfunction had occurred.

The impacts associated with the proposed change are discussed in Section 3.

## 2.2 Necessity of Proposed Change

Sections 1769 (a)(1)(B) and 1769(a)(1)(C) of the CEC Siting Regulations require a discussion of the necessity for the proposed change to the project and whether this modification is based on information that was known by the petitioner during the certification proceeding.

The proposed change to Condition AQ-2 was not known during the CPP licensing process as the underlying conditions manifested during the initial operation of the turbines.

## SECTION 3

# Environmental Analysis of the Project Change

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SCPPA has reviewed the modification proposed herein to determine if the proposed change will result in any environmental impacts that were not originally analyzed by the CEC when it approved the project in March 2010. The only discipline that could be affected by the proposed change described in this amendment is air quality.

## 3.1 Air Quality

The operating agent for the CPP, the City of Anaheim (COA), conducted an investigation of potential causes of the excess CO emissions. COA consulted with GE to determine if the turbines, continuous emissions monitoring system (CEMS), and data acquisition handling system (DAHS)<sup>1</sup> were functioning as designed. GE determined the turbines, CEMS, and DAHS were performing as designed.

The COA next reviewed the CEMS records for Units 2 and 4 during the start ups that exceeded the CO limit. During this review and subsequent discussions with GE, it was determined that several conditions occur during the first minute of a start up that could result in higher measured CO emissions. These conditions are:

1. Differences in the CO and oxygen (O<sub>2</sub>) analyzers response times could affect the calculated CO emissions.
2. The initial opening of the natural gas valve during a turbine start can result in turbulent fuel flow that could affect the fuel flow measurements.
3. Initiating fuel flow to a turbine during the end of a CEMS/DAHS clock minute could result in the CEMS/DAHS not recording this information until the next clock minute.

In calculating the CO emissions, the CEMS measures the CO and O<sub>2</sub> concentrations at the exhaust stack, and the fuel flow into the turbine. These data are used by the DAHS to calculate the CO emissions using a modification of Environmental Protection Agency's (EPA) Reference Method (RM) 19. The DAHS calculates a new CO emission every clock minute of operation. The modified RM 19 calculation is presented below.

$$ER = F_d * C_d * (20.9 / (20.9 - O_2)) * HI$$

Where

ER – CO emission rate in pounds per minute

F<sub>d</sub> – 8710 Dry Standard Cubic Feet (SDCF) of Exhaust Gas at 0% Oxygen/MMBtu

C<sub>d</sub> – CO concentration in lb/SDCF

O<sub>2</sub> – Oxygen concentration in percent by volume dry

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<sup>1</sup> The DAHS records measured emissions and operation parameters and performs calculations to demonstrate compliance with applicable air quality regulations and permit limits.

## HI – Turbine heat input in MMBtu/minute - HHV

This calculation method depends on using the same exhaust concentrations for both CO and O<sub>2</sub> to calculate CO emissions. During steady state turbine operation, the differences in the CO and O<sub>2</sub> analyzers response time is not an issue as the CO and O<sub>2</sub> concentrations do not change significantly from minute to minute. However, during the first few minutes of a turbine start, the CO and O<sub>2</sub> concentrations change significantly. Furthermore, since the turbine heat input is included in the one minute average CO emission calculation, fluctuations in the recorded fuel flow caused by the initial opening of the fuel valve could result in an erroneously high fuel flow reading. Finally, when the turbine start is initiated during the latter half of a clock minute, it can skew the calculated CO start-up emissions, compounding the other systematic discussed above.

This petition to amend is not proposing to physically modify any project equipment or operating conditions. Therefore, daily, monthly, and annual CO emissions are not expected to increase as a result of the proposed changes. This is confirmed by the SCAQMD's draft revision to the Title V permit contained in Attachment 1.<sup>2</sup>

### 3.1.1 Air Quality Regulatory Evaluation

This section provides an evaluation of the proposed changes on applicable Federal, State, and local regulations.

#### Federal and State Regulations

The SCAQMD is responsible for issuing the federal and state New Source Review permits and is delegated enforcement of applicable Federal Clean Air Act requirements.

#### Local Regulations

The basis for the compliance demonstration contained in the CPP Final Decision for SCAQMD Rules 212, 218, 401, 402, 403, 407, 409, 431.1, 431.2, 475, Regulations IX, XIV, XVII, and XX<sup>3</sup> are still applicable and will not be reiterated herein. Furthermore, the proposed change only impact the combustion turbines, therefore this regulatory evaluation will not address regulations and rules applicable to the other emission sources on the project site (black start engine, cooling tower, and ammonia tank).

#### Regulation XIII, Rule 1303(a)

The proposed change to the CO start up emission rate is consistent with the SCAQMD's BACT determination on the Riverside Energy Resource Center Units 3 and 4 (08-SPPE-1). In addition, the proposed CO emission rate 11.6 lb/hr is lower than the Mariposa Energy Project's (09-AFC-03) start up CO emission limit of 17.3 lb/hr. Finally, the SCAQMD

<sup>2</sup> Attachment 1, page 42.

<sup>3</sup> Regulation XX applies to NO<sub>x</sub> and SO<sub>2</sub> emissions, which are not expected to change as a result of the proposed project change. Regulations XIV and XVII are based on annual or daily emission estimates which are not expected to increase due to the proposed change in CO start emissions.

concluded that the proposed CO start up emission rate is consistent with recent BACT determinations.<sup>4</sup>

### Regulation XIII, Rule 1303(b)(1)

Rule 1303(b)(1) requires air dispersion modeling to substantiate that a new or modified permit will not cause or contribute to the violation of an ambient air quality standard (AAQS). The project area is in attainment of the CO AAQS. To demonstrate the proposed change to the CO start up limit will not cause or contribute to the violation of an AAQS, the maximum modeled CO concentrations was added to representative background concentration and compared to state and federal AAQS. Table 1 shows a comparison of the maximum CPP operating impacts in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to the AAQS. This comparison uses the maximum modeled concentrations presented in the CPP Final Staff Assessment scaled to the increased CO start up limit by multiplying the maximum modeled impact by the ratio of 11.6/6.3. Furthermore, the ambient CO background concentrations were increased to reflect the values presented in the SCAQMD's regulatory analysis.<sup>5</sup> As shown by Table 1, the increase in start up CO emissions will not cause or contribute to the violation of an AAQS as the combined impacts (project plus background) are less than 50 percent of the applicable standards.

TABLE 1

**Comparison of Maximum Modeled CO Impacts to Ambient Air Quality Standards**

Pollutant	Averaging Time	Max. Modeled Impact <sup>a,b</sup>	Background <sup>c</sup>	Total Impact	Limiting Standard
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
CO	1-hour	142	8,510	8,652	23,000
	8-hour	12	4,544	4,556	10,000

<sup>a</sup> Maximum modeled concentrations from the CPP Final Staff Assessment, Air Quality Table 16 were scaled up from FSA Air Quality Table 16 to reflect the change in CO start emissions by multiplying by 11.6/6.3.

<sup>b</sup> Revised background CO concentrations from Attachment 1, Table 38 on page 37.

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

### Regulation XIII, Rule 1303(b)(2) and Rule 2005(b)(2) - Offsets

The only pollutant affected by the proposed project change is CO, for which the basin is designated as attainment. Therefore, no CO offsets are required. Furthermore, no change in the CPP's 30 day average emissions is being requested, requiring the need for additional offsets to be provided.

### Regulation XXX - Title V

The SCAQMD determined that the proposed change is considered a "de minimis significant permit revision" for which a permit modification request was submitted. The SCAQMD has issued a draft Title V permit revision based on this request (Attachment 1) which demonstrates compliance with Regulation XXX.

<sup>4</sup> Attachment 1, page 36.

<sup>5</sup> See Table 38 on page 37 of Attachment 1.



### 3.1.2 Cumulative Impact Assessment

The proposed change to the CPP license does not alter the basis of the cumulative impact assessments used in approving the CPP license.

## SECTION 4

# Proposed Modifications to the Conditions of Certification

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Consistent with the requirements of the CEC Siting Regulations Section 1769 (a)(1)(A), this section addresses the proposed modification to the project's Conditions of Certification.

## Condition of Certification AQ-2

A modification to the Condition of Certification AQ-2 in the CEC Final Decision for the CPP will be required to allow for an increased in the CO start-up emission rate. The City of Anaheim has provided a draft revision to Condition of Certification AQ-2 below for consideration. The proposed AQ-2 revisions are identical to the changes contained in the SCAQMD's draft permit. No changes are proposed to the AQ-2 Verification; therefore it was not included below.

**AQ-2** The 2.5 ppm NO<sub>x</sub>, 4.0 ppm CO, and 2.0 ppm ROG emission limits shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each startup shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. Each turbine shall be limited to a maximum of 240 start-ups per year.

NO<sub>x</sub>, CO, and ROG emissions for an hour that includes a ~~full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence~~ shall not exceed 14.27 lbs for NO<sub>x</sub>, ~~6.3~~11.6 lbs for CO, and 1.29 lbs for ROG and for the hour ~~which that~~ includes a shutdown 4.07 lbs for NO<sub>x</sub>, 4.15 for CO, and 1.27 lbs for ROG. For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.

The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request. For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D1, D7, D13, D19]

## SECTION 5

# Potential Effects on the Public and Property Owners

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The proposed change described in this amendment will have no effect on the public and property owners beyond what was originally approved by the CEC.

The proposed project change is expected to result in comparable impacts to the public and property owners as were analyzed during project licensing. Therefore, impacts to the public and property owners are expected to be the same than those analyzed during the license proceeding for the project.

## SECTION 6

# List of Property Owners

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Consistent with the CEC Siting Regulations Section 1769(a)(1)(H), this section lists the property owners affected by the proposed modifications. The list of property owners within 1,000 feet of the proposed project is provided as Attachment 2 to this Amendment.

## SECTION 7

# References

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Canyon Power Plant Final Commission Decision (07-AFC-9), March 2010, CEC-800-2010-001-CMF.

Canyon Power Plant Final Staff Assessment (07-AFC-9), September 2009, CEC-700-2009-008-FSA.

South Coast Air Quality Management District's Canyon Power Plant Draft Title V Permit Revision, April 2012.

ATTACHMENT 1

# South Coast Air Quality Management District's Draft Title V Permit

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# South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178  
(909) 396-2000 • [www.aqmd.gov](http://www.aqmd.gov)

April 24, 2012

Mr. Gerardo Rios  
Chief – Permits Office  
U. S. EPA, Region IX  
75 Hawthorne Street, Air 3  
San Francisco, CA 94105

Dear Mr. Rios:

Subject: Canyon Power Plant (ID 153992) – Title V Permit Revision

Canyon Power Plant (ID 153992) has proposed to revise their Title V permit under Application No. 531827 by change of permit conditions. This is a power plant (SIC 4911) located at 3071 E. Miraloma Avenue, Anaheim, CA 92806. This proposed permit revision is considered as a “de minimis significant permit revision” to their Title V permit. Attached for your review is the evaluation and permit for the proposed revision. With your expected receipt of the proposed Title V permit revision today, we will note that the EPA 45-day review period begins on April 24, 2012.

If you have any questions or need additional information regarding the proposed permit revision, please call Vicky Lee of my staff at (909) 396-2284.

Very truly yours,

A handwritten signature in black ink, appearing to read "Brian L. Yeh", with a long horizontal stroke extending to the right.

Brian L. Yeh  
Senior Manager  
General Commercial and Energy Team  
Engineering and Compliance

BLY:AYL:RGC:VL  
Attachments

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 1
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

ENGINEERING EVALUATION
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CANYON POWER PLANT  
201 S. ANAHEIM BLVD.  
ANAHEIM, CA 92805-3821

FACILITY ID: 153992

EQUIPMENT LOCATION: 3071 E. Miraloma Ave.  
Anaheim, CA 92806-1809

Contact: Manny Robledo, Electric Operations Manager (714) 765-5107

### EQUIPMENT DESCRIPTION

#### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
PROCESS 1: POWER GENERATION					
SYSTEM 1: GAS TURBINES					
GAS TURBINE, NO. 1, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: <del>476654</del> <u>531829</u>  GENERATOR, 50.95 MW	D1          [B2]	C3	NOX: MAJOR SOURCE	<b>CO:</b> 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; <b>CO:</b> 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988]  <b>NOX:</b> 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; <b>NOX:</b> 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; <b>NOX:</b> 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; <b>NOX:</b> 25 PPMV NATURAL GAS (8) [40 CFR60 SUBPART KKKK, 7-6-2006]  <b>PM10:</b> 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; <b>PM10:</b> 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; <b>PM10:</b> 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]  <b>SO2:</b> (9) [40CFR 72 – Acid Rain	



<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 2
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
				Provisions, 11-24-1997]  <b>SOX:</b> 0.06 LBS/MMBTU NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]  <b>VOC:</b> 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 1, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476654	C3	D1 C4			
SELECTIVE CATALYTIC REDUCTION, NO. 1, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476654  AMMONIA INJECTION	C4  [B5]	C3 S6		<b>NH3:</b> 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
STACK, TURBINE NO. 1, HEIGHT: 86 FT; DIAMETER: 11 FT 8 IN A/N: <del>476654</del> <b>531829</b>	S6	C4			
GAS TURBINE, NO. 2, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: <del>476656</del> <b>531831</b>  GENERATOR, 50.95 MW	D7  [B8]	C9	NOX: MAJOR SOURCE	<b>CO:</b> 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; <b>CO:</b> 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988]  <b>NOX:</b> 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; <b>NOX:</b> 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; <b>NOX:</b> 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; <b>NOX:</b> 25 PPMV NATURAL GAS (8) [40 CFR60 SUBPART KKKK, 7-6-2006]  <b>PM10:</b> 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; <b>PM10:</b> 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; <b>PM10:</b> 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]  <b>SO2:</b> (9) [40CFR 72 – Acid Rain Provisions, 11-24-1997]	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 3
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
				<b>SOX:</b> 0.06 LBS/MMBTU NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]  <b>VOC:</b> 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 2, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476657	C9	D7 C10			
SELECTIVE CATALYTIC REDUCTION, NO. 2, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476657	C10	C9 S12		<b>NH3:</b> 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
AMMONIA INJECTION	[B11]				
STACK, TURBINE NO. 2, HEIGHT: 86 FT; DIAMETER: 11 FT 8 IN A/N: <del>476656</del> <b>531831</b>	S12	C10			
GAS TURBINE, NO. 3, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: <del>476659</del> <b>531832</b>  GENERATOR, 50.95 MW	D13       [B14]	C15	NOX: MAJOR SOURCE	<b>CO:</b> 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; <b>CO:</b> 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988]  <b>NOX:</b> 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; <b>NOX:</b> 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; <b>NOX:</b> 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; <b>NOX:</b> 25 PPMV NATURAL GAS (8) [40 CFR60 SUBPART KKKK, 7-6-2006]  <b>PM10:</b> 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; <b>PM10:</b> 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; <b>PM10:</b> 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]  <b>SO2:</b> (9) [40CFR 72 – Acid Rain Provisions, 11-24-1997]  <b>SOX:</b> 0.06 LBS/MMBTU NATURAL	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 4
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
				GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]  VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 3, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476660	C15	D13 C16			
SELECTIVE CATALYTIC REDUCTION, NO. 3, CORMETECH CMHT-21, 1012 CU. FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476660  AMMONIA INJECTION	C16  [B17]	C15 S18		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
STACK, TURBINE NO. 3, HEIGHT: 86 FT; DIAMETER: 11 FT 8 IN A/N: <del>476659</del> <b>531832</b>	S18	C16			
GAS TURBINE, NO. 4, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N: <del>476664</del> <b>531833</b>  GENERATOR, 50.95 MW	D19  [B20]	C21	NOX: MAJOR SOURCE	CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; CO: 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988]  NOX: 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; NOX: 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; NOX: 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; NOX: 25 PPMV NATURAL GAS (8) [40 CFR60 SUBPART KKKK, 7-6-2006]  PM10: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; PM10: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM10: 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]  SO2: (9) [40CFR 72 – Acid Rain Provisions, 11-24-1997]  SOX: 0.06 LBS/MMBTU NATURAL	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 5
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
				GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]  VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 4, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476663	C21	D19 C22			
SELECTIVE CATALYTIC REDUCTION, NO. 4, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476663	C22	C21 S24		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
AMMONIA INJECTION	[B23]				
STACK, TURBINE NO. 4, HEIGHT: 86 FT; DIAMETER: 11 FT 8 IN A/N: <del>476664</del> <b>531833</b>	S24	C22			

- \* (1) Denotes RECLAIM emission factor (2) Denotes RECLAIM emission rate  
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emissions limit  
(5)(5A)(5B) Denotes command & control emission limit (6) Denotes air toxic control rule limit  
(7) Denotes NSR applicability limit (8)(8A)(8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc)  
(9) See App B for Emission Limits (10) See Section J for NESHAP/MACT requirements  
\*\* Refer to Section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## **DEVICE CONDITIONS**

### ***GAS TURBINES***

A63.1 The operator shall limit emission from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
VOC	Less than or equal to 129 LBS IN ANY CALENDAR MONTH
PM10	Less than or equal to 299 LBS IN ANY CALENDAR MONTH
SOx	Less than or equal to 34 LBS IN ANY CALENDAR MONTH

For the purposes of this condition, the above emission limits shall be based on the emissions from a single turbine.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 6
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

The turbine shall not commence with normal operation until the commissioning process has been completed. Normal operation commences when the turbine is able to supply electrical energy to the power grid as required under contract with the relevant entities. The District shall be notified in writing once the commissioning process for each turbine is completed.

Normal operation may commence in the same calendar month as the completion of the commissioning process provided the turbine is in compliance with the above emission limits.

The operator shall calculate the monthly emissions for VOC, PM10, and SOx using the equation below.

Monthly Emissions, lb/month = (Monthly fuel usage in mmscf/month) \* (Emission factors indicated below)

For commissioning, the emission factors shall be as follows: VOC, 3.76 lb/mmcf; PM10, 6.03 lb/mmcf; and SOx, 0.68 lb/mmcf.

For normal operation, the emission factors shall be as follows: VOC, 2.59 lb/mmcf; PM10, 6.03 lb/mmcf; and SOx, 0.68 lb/mmcf.

For a month during which both commissioning and normal operation take place, the monthly emissions shall be the total of the commissioning emissions and the normal operation emissions.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

[RULE 1303(b)(2)–Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: D1, D7, D13, D19]

- A99.1 The 2.5 PPM NOx emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each start-up shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. The turbines shall be limited to a maximum of 240 start-ups per year.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 7
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

NOx emissions for an hour that includes a **start-up** ~~full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence~~ shall not exceed 14.27 lbs, and for the **an** hour ~~which~~ **that** includes a shutdown 4.07 lbs. **For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.**

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

For the purposes of this condition, start-up shall be defined as the start -up process to bring the turbine to full successful operation.

[RULE 1703(a)(2) – PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

- A99.2 The 4.0 PPM CO emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each start-up shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. The turbine shall be limited to a maximum of 240 start-ups per year.

CO emissions for an hour that includes a **start-up** ~~full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence~~ shall not exceed ~~6.3 lbs~~ **11.6 lbs**, and for the **an** hour ~~which~~ **that** includes a shutdown 4.15 lbs. **For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.**

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

[RULE 1703(a)(2) – PSD-BACT, 10-7-1988]

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 8
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

[Devices subject to this condition: D1, D7, D13, D19]

- A99.3 The 2.0 PPM ROG emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each start-up shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. The turbine shall be limited to a maximum of 240 start-ups per year.

ROG emissions for an hour that includes a ~~start-up full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence~~ shall not exceed 1.29 lbs, and for the ~~an~~ hour which ~~that~~ includes a shutdown 1.27 lbs. **For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.**

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D1, D7, D13, D19]

- A99.4 The 98.16 LBS/MMCF NOx emission limit(s) shall only apply during turbine commissioning during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

[RULE 2012, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

- A99.5 The 11.53 LBS/MMCF NOx emission limit(s) shall only apply after turbine commissioning during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

[RULE 2012, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

- A195.1 The 2.5 PPMV NOX emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 9
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

[RULE 1703(a)(2) – PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

A195.2 The 4.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O<sub>2</sub>, dry.

[RULE 1703(a)(2) – PSD-BACT, 10-7-1988]

[Devices subject to this condition: D1, D7, D13, D19]

A195.3 The 2.0 PPMV ROG emission limit(s) is averaged over 60 minutes at 15 percent O<sub>2</sub>, dry.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D1, D7, D13, D19]

A327.1 For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.

[RULE 475, 10-8-1976; RULE 475, 8-7-1978]

[Devices subject to this condition: D1, D7, D13, D19]

B61.1 The operator shall not use natural gas containing the following specified compounds:

<u>Compound</u>	<u>Range</u>	<u>Grain per 100 scf</u>
H <sub>2</sub> S	Greater than	0.25

This concentration limit is an annual average based on monthly samples of natural gas composition or gas supplier documentation. Gaseous fuel samples shall be tested using District Method 307-91 for total sulfur calculated as H<sub>2</sub>S.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: D1, D7, D13, D19]

D12.1 The operator shall install and maintain a(n) flow meter to accurately indicate the fuel usage being supplied to the turbine.

The operator shall also install and maintain a device to continuously record the parameter being measured.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 2012, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]



<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 10
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

D29.1 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NOX emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment
CO emissions	District Method 100.1	1 hour	Outlet of the SCR serving this equipment
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	District Method 5	4 hours	Outlet of the SCR serving this equipment
NH3 emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of the SCR serving this equipment

The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in MW.

The test shall be conducted when this equipment is operating at loads of 100, 75, and 50 percent, with the exception of PM10 testing. For PM10, the test shall be conducted when this equipment is operating at a load of 100 percent.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows:  
a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters are done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA Method TO-12 (with

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 11
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

preconcentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F.

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines.

Because the VOC BACT level was set using data derived from various source test results, this alternate VOC compliance method provides a fair comparison and represents the best sampling and analysis technique for this purpose at this time. The test results shall be reported with two significant digits.

For the purpose of this condition, alternative test method may be allowed for each of the above pollutants upon concurrence of AQMD, EPA and CARB.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

D29.2 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

If the turbine is not in operation during one quarter, then no testing is required during that quarter.

The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted and the results submitted to the District within 60 days after the test date.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 12
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D1, D7, D13, D19]

D29.3 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	District Method 5	4 hours	Outlet of the SCR serving this equipment

The test shall be conducted at least once every three years. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in MW.

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted when this equipment is operating at loads of 100, 75, and 50 percent, with the exception of PM10 testing. For PM10, the test shall be conducted when this equipment is operating at a load of 100 percent.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows:  
a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters are done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA Method TO-12 (with preconcentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 13
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines.

Because the VOC BACT level was set using data derived from various source test results, this alternate VOC compliance method provides a fair comparison and represents the best sampling and analysis technique for this purpose at this time. The test results shall be reported with two significant digits.

For the purposes of this condition, alternative test method may be allowed for each of the above pollutants upon concurrence of AQMD, EPA, and CARB.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2)-PSD-BACT, 10-7-1988]

[Devices subject to this condition: D1, D7, D13, D19]

D82.1 The operator shall install and maintain a CEMS to measure the following parameters:

CO concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial startup of the turbine, in accordance with an approved AQMD Rule 218 CEMS plan application. The operator shall not install the CEMS prior to receiving initial approval from AQMD. Within two weeks of the turbine start-up, the operator shall provide written notification to the District of the exact date of start-up.

The CEMS shall be installed and operated to measure CO concentrations over a 15 minute averaging time period.

[RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 218, 8-7-1981; RULE 218, 5-14-1999]

[Devices subject to this condition: D1, D7, D13, D19]

D82.2 The operator shall install and maintain a CEMS to measure the following parameters:

NOx concentration in ppmv

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 14
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial start-up and the provisional certification date of the CEMS, the operator shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3). Within two weeks of the turbine start-up date, the operator shall provide written notification to the District of the exact date of start-up.

The CEMS shall be installed and operating (for BACT purposes only) no later than 90 days after initial start-up of the turbine.

[RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005; RULE 2012, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

- E193.1 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all air quality mitigation measures stipulated in the final California Energy Commission decision for the 07-AFC-9 project.

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition: D1, C4, D7, C10, D13, C16, D19, C22, D25, D28, D29]

- H23.1 This equipment is subject to the applicable requirements of the following Rules or Regulations:

Contaminant	Rule	Rule/Subpart
NO <sub>x</sub>	40CFR60, SUBPART	KKKK
SOX	40CFR60, SUBPART	KKKK

[40 CFR 60 Subpart KKKK, 7-6-2006]

[Devices subject to this condition: D1, D7, D13, D19]

- I296.1 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 44	<b>PAGE</b> 15
	<b>APPL. NO.</b> 531827, 531829, 531831, 531832, 531833	<b>DATE</b> 2/17/2012
	<b>PROCESSED BY</b> V. Lee	<b>CHECKED BY</b>

To comply with this condition, the operator shall prior to the 1<sup>st</sup> compliance year hold a minimum NOx RTCs of 9677 lbs/yr. This condition shall apply during the 1<sup>st</sup> 12 months of operation, commencing with the initial operation of the gas turbine.

To comply with this condition, the operator shall, prior to the beginning of all years subsequent to the 1<sup>st</sup> compliance year, hold a minimum of 6886 lbs/yr of NOx RTCs for the operation of the gas turbine.

In accordance with Rule 2005(f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1<sup>st</sup> compliance year.

The condition shall apply to each turbine individually.

[RULE 2005, 5-6-2007]

[Devices subject to this condition: D1, D7, D13, D19]

K40.1 The operator shall provide to the District a source test report in accordance with the following specifications:

Source test results shall be submitted to the District no later than 60 days after the source test was conducted.

Emission data shall be expressed in terms of concentration (ppmv) corrected to 15 percent oxygen (dry basis), mass rate (lb/hr), and lb/MMCF. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains/DSCF.

All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).

All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.

Source test results shall also include the oxygen levels in the exhaust, fuel flow rate (CFH), the heating content of the fuel, the flue gas temperature, and the generator power output (MW) under which the test was conducted.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2)-PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

K67.1 The operator shall keep records in a manner approved by the District, for the following parameter(s) or item(s):

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 16
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Natural gas fuel use during the commissioning period.

Natural gas fuel use after the commissioning period and prior to CEMS certification.

Natural gas fuel use after CEMS certification.

[RULE 2005, 5-6-2005]

[Devices subject to this condition: D1, D7, D13, D19]

## **BACKGROUND AND FACILITY DESCRIPTION**

### **Project Background and Permitting Status Prior to Proposed Revisions**

- **Facility Operator**

The Southern California Public Power Authority (SCPPA) submitted applications on 12/26/07 to install a new natural gas fired peaker power plant, Canyon Power Plant (CPP), nominally rated at 200 megawatts. SCPPA is a consortium of municipalities and an irrigation district established by a Joint Powers Agreement to develop, construct, and operate electric generation and transmission projects. SCPPA is the owner, but the City of Anaheim (COA), the sole participating member city, is the operator. The applications were prepared by URS.

The CPP will be strictly dedicated for generating power to serve the COA's retail customers. Prior to the project, load/resource balances for the COA showed a significant power shortage during the summer period. As a result the output will be utilized to serve native load within the COA and to meet resource adequacy requirements.

- **Facility Description**

This new power plant consists of four (4) identical combustion-turbine-generators (CTGs) for a total rated peak generating capacity of 1916 MMBTU/hr at 46 °F. The gas turbines are General Electric LM6000PC Sprint units. Each turbine drives a generator rated at 50.95 MW.

Each of the CTGs are configured in simple cycle; therefore, there are no heat recovery steam generators (HRSG), duct burners, or steam turbines used at this plant. The net power generated, after deducting auxiliary power consumption, is derived solely from the four generators. Four identical selective catalytic reduction (SCR) systems and CO oxidation catalysts are utilized for control of NO<sub>x</sub> and CO emissions, respectively. One 10,000 gallon ammonia (NH<sub>3</sub>) storage tank stores 19% aqueous ammonia which is part of the SCR process. A 4-cell mechanical draft evaporative

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 17
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

chiller cooling tower provides evaporative cooling for the inlet air to the CTGs to augment power production, and operates during all hours of normal CTG operation. An 1141 bhp diesel emergency internal combustion engine (black start engine) is used to start up the plant in the event of a loss of grid power. An oil water separator is be used to collect equipment washwater and rainfall.

- Final Determination of Compliance (FDOC) and Permits to Construct Issued**  
 The project underwent two major scope revisions in response to the Superior Court's interim decisions for the litigation on Rules 1309.1 and 1304. First, priority reserve credits became unavailable to be purchased under Rule 1309.1. Second, Rule 1304 offset exemptions became unavailable, including the exemption for facility-wide emissions of VOC, SO<sub>x</sub>, and PM<sub>10</sub> less than 4 TPY. The revised application was submitted in September 2008, and the second revised application in November 2008. Prior to the issuance of the P/Cs, CPP was required to provide emission reduction credits for VOC (21 lb/day), PM<sub>10</sub> (48 lb/day), and SO<sub>x</sub> (5 lb/day).

The California Energy Commission (CEC) has the statutory responsibility for certification of power plants rated at 50 MW and larger. Thus the CPP was subject to the CEC's 12-month certification process.

On 6/24/09, the FDOC was issued.

On 3/23/10, the P/Cs were issued as indicated below. The CPP is both a RECLAIM and Title V facility.

Application	Description	Device ID#	Process ID
476650	Initial Title V (1-20 devices)		
476651	GE LM6000PC Sprint Gas Turbine #1	D1	1
476654	SCR/CO Oxidation Catalyst #1	C3, C4	1
476656	GE LM6000PC Sprint Gas Turbine #2	D7	1
476657	SCR/CO Oxidation Catalyst #2	C9, C10	1
476659	GE LM6000PC Sprint Gas Turbine #3	D13	1
476660	SCR/CO Oxidation Catalyst #3	C15, C16	1
476661	GE LM6000PC Sprint Gas Turbine #4	D19	1
476663	SCR/CO Oxidation Catalyst #4	C21, C22	1
476665	Ammonia Storage Tank	D28	1
476666	Emergency ICE (Black Start Engine)	D25	1
481185	Oil Water Separator	D29	2



<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 18
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

- **Source Testing**

On June 11-13, 2011, Advanced Environmental Compliance performed the initial source testing on Turbine Nos. 3 and 4. On August 9-11, 2011, Delta Air Quality Services, Inc. performed the initial source testing on Turbine No. 2, and on August 12-14, 2011, the testing for Turbine No. 1.

The Source Testing evaluation, dated 8/18/11, from Mike Cecconi deemed the source tests for Turbine Nos. 3 and 4 “conditionally acceptable.” However, the Source Testing evaluation for Turbine Nos. 1 and 2 is pending because in the interim, it came to light that the analytical lab used an analytical method that resulted in lower VOC emissions levels than would have resulted from District Method 25.3. The extent of re-testing that will be required is under discussion.

All P/Cs will be converted to P/Os upon the successful completion of the source tests.

**Proposed Revisions, A/N 531829, 531831, 531832, 531833, 531827**

- **Reason for Submittal**

Condition A99.2 currently limits start-up emissions for CO to 6.3 lb/hr. The facility has experienced recent excess emissions episodes during which the CO levels calculated by the DAHS during the first minute of operation are too high to average down below the permit limit of 6.3 lb for the startup hour. The CO emission levels reported on 10/21/11 for Unit 2 and 10/24/11 for Unit 1 were 6.6 lb/hr CO and 9.5 lb/hr CO, respectively, which were both above the 6.3 lb/hr CO limit. This is an intermittent problem as evidenced by two other starts on the same days yielding less than 6.3 lb/hr CO. The application included spreadsheet setting forth minute-data for all four starts.

The facility has reviewed the CEMS data for these startups and has determined that the data are accurate and no equipment malfunction has occurred. Also, the facility has contacted the turbine vendor, General Electric (GE), to discuss this issue, and the vendor determined that the turbines, the CEMS, and the DAHS are performing as designed. General Electric does not guarantee CO mass emission levels during the startup period, and they acknowledged that the variability during the first minute of operation is normal given the following variables:

1. The difference in response time between the CO and O2 analyzers may affect the lb/hr CO calculation for the first minute.
2. The turbulent fuel flow and gas pressure fluctuations caused by opening the fuel valve on startup may affect the fuel flow value during the first minute.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 19
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

- If the unit is started close to the end of the CEMS/DAHS clock minute, then the processing time of the control system may not complete until the next clock minute.

The facility has conducted a search of other recently permitted LM6000 units to determine what other hourly CO startup emission mass limits were being permitted for similar simple cycle gas turbines, and two comparable facilities were identified with significantly higher CO startup hour mass limits. The first project is the Mariposa Energy Project located in the Bay Area Air Quality Management jurisdiction (<http://www.baaqmd.gov/Divisions/Engineering/Public-Notices-on-Permits/2010/081810-20737/Mariposa-Energy-Project.aspx>). This facility's air permit includes an hourly CO start up limit of 17.3 lb CO for the startup hour (Condition 18). The second project is the City of Riverside's Energy Resource Center (Facility ID 139796), which includes a condition (A433.2) with an hourly CO start up limit of 11.60 lb per each 60 consecutive startup minutes.

Considering that the Riverside facility was recently permitted by AQMD and is virtually identical to the Canyon Power Plant, i.e. four (4) LM6000 GE units, the most appropriate hourly CO start up limit to select would be 11.60 pounds CO per startup hour as contained in the Riverside permit. Therefore, the facility respectfully requests that the startup hour CO permit limit be modified from 6.3 lb CO per startup hour to 11.60 lb CO per startup hour to ensure reliable compliance going forward.

- Applications Submitted**

On 1/27/12, the facility submitted the following expedited applications to increase the CO start-up emissions limit from 6.3 lb/hr to 11.6 lb/hr.

A/N	Prior Permit (A/N)	Equipment & Proposed Modification	Recommended Disposition
531829	476651	Turbine No. 1—Modification application* to revise Condition No. A99.2 to increase the start-up emissions limit from 6.3 lb/hr to 11.60 lb/hr.	Issue P/C after 45-day EPA review.
531831	476656	Turbine No. 2—Same	Same.
531832	476659	Turbine No. 3—Same	Same.
531833	476661	Turbine No. 4—Same	Same.
531827		De minimis significant Title V revision	Approve after EPA review.

\* Rule 301(b)(6) defines "change of condition" as a change of a current permit condition that will not result in an emission increase. Any request for a Change of Condition to a previously enforceable permit condition that will result in a emission increase subject to the New Source Review Rules will be considered a change in the method of operation and processed as an Alteration or Modification.

*Note: A/N 531829 is the master file.*

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 44	<b>PAGE</b> 20
	<b>APPL. NO.</b> 531827, 531829, 531831, 531832, 531833	<b>DATE</b> 2/17/2012
	<b>PROCESSED BY</b> V. Lee	<b>CHECKED BY</b>

- **CEC**

The facility has requested a copy of the proposed Title V permit when the District submits the permit to the EPA for de minimis Title V revision review. The facility will submit the proposed permit to the CEC at that time.

- **On-Base Image Retrieval System**

These applications include documents required for the evaluation of the proposed increase in hourly CO startup emissions only.

All documents for the initial permitting of the project will remain in A/N 476651 (master file), 476656, 476659, 476661. These documents will include the application for certification (“AFC”) (07-AFC-9) submitted by the applicant to the CEC on December 28, 2007, the original applications and subsequent scope revisions, all related correspondence, and source test reports. The P/C to P/O conversion evaluation will include the increase in CO startup emissions as one of the changes from the P/Cs.

## **PROCESS DESCRIPTION**

### **1. Turbine Nos. 1-4**

#### **a. Prior Permits A/N 476651, 476656, 476659, 476661**

The four simple cycle CTGs are natural gas-fired General Electric LM6000PC Sprint Combustion Turbine Generators, rated at 50.95 MW. The CTGs are equipped with evaporative inlet air cooling and water injection into the combustion zone. The inlet combustion air is cooled via a chiller cooling tower system to increase turbine performance during high ambient temperature conditions. The CTGs have water injection spray evaporative inter-cooling between the low-pressure and high- pressure compressor sections as well as to the inlet of the low-pressure compressor to increase turbine performance.

The water injection into the combustor also suppresses flame temperature and reduces the 1-hour average NOx concentration to 25 ppmvd at 15% oxygen prior to entry into the SCR. The SCR catalyst with ammonia injection further reduces the NOx emissions to 2.3 ppmv, 1-hour average, dry basis at 15% O2, which is lower than the 2.5 ppmv BACT limit.

Condition A99.2 limits the hourly startup emissions for CO to 6.3 pounds based on the startup emissions profile provided by General Electric. A limit is required for BACT and modeling reasons. (See discussion on BACT and modeling requirements below.)

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 21
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**b. A/N 531829, 531831, 531832, 531833**

The facility proposes to revise condition A99.2 to increase the hourly startup emissions from 6.3 pounds to 11.6 pounds because the turbines are unable to consistently meet the 6.3 pounds limit. General Electric may have been overly optimistic. The proposed limited was selected to be consistent with the facility permit issued to the City of Riverside Public Utilities Dept (ID 139796). There will be no physical modifications.

Condition nos. A99.1, A99.2, and A99.3 for NO<sub>x</sub>, CO, and ROG, respectively, will be revised to clarify the meaning of “an hour that includes a start-up.” Since the issuance of the P/Cs, a question was raised regarding whether the hourly emissions period starts when the gas is introduced and ends on the hour (e.g., 3:00). Another question was raised regarding whether the limit applies, if there were no trip and restart.

**2. Selective Catalytic Reduction/CO Oxidation Catalyst Systems Nos. 1-4, Permitted Under A/N 476654, 476657, 476660, 476663**

Applications were not requested for the SCR/CO oxidation catalyst systems because there will be no modifications to this system. The process description will be included here as the CO oxidation catalyst is relevant to CO emissions.

**a. Current Permits-- A/N 476654, 476657, 476660, 476663**

Each CTG is equipped with a selective catalytic reduction/CO oxidation catalyst system.

- CO Oxidation Catalyst

The CO oxidation catalyst, located between the CTG and the SCR, is used to control CO and VOC emissions. The catalyst reduces CO emissions to 4 ppmv and the VOC to 2 ppmv, both 1-hour averages, dry basis at 15% O<sub>2</sub>.

- Selective Catalytic Reduction

The SCR catalyst uses ammonia injection in the presence of the catalyst to further reduce the NO<sub>x</sub> concentration in the exhaust gases. Diluted ammonia vapor is injected into the exhaust gas stream via a grid of nozzles located upstream of the catalyst. The resulting reaction reduces NO<sub>x</sub> to elemental nitrogen and water, resulting in NO<sub>x</sub> concentrations in the exhaust gas at no greater than 2.3 ppmv at 15% O<sub>2</sub> on a 1-hour average. The ammonia slip is limited to 5 ppmvd at 15% O<sub>2</sub>. Each SCR is vented through a dedicated stack, which is 11.7 ft diameter and 86 ft high.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 22
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

- Performance Warranty  
General provided a guarantee, dated 6/26/08, for controlled emissions levels, which are shown in the table below. *(The table numbers in this evaluation are the same as in the FDOC, issued 6/24/09.)*

**Table 8 --Warranted Emissions for Control Systems**

Pollutants	Warranted Emissions
NO <sub>x</sub>	2.3 ppmvd at 15% O <sub>2</sub>
CO	6 ppmvd at 15% O <sub>2</sub>
VOC	2 ppmvd at 15% O <sub>2</sub>
PM <sub>10</sub>	3 lb/hr
NH <sub>3</sub>	5 ppmvd at 15% O <sub>2</sub> , dry basis

CO--The warranted emission rate of 6 ppmv was the same as the BACT/LAER limit prior to this project. Prior to the issuance of the P/Cs, the District, however, determined that 4 ppmvd at 15% O<sub>2</sub> was sufficiently well demonstrated to be achieved in practice for simple cycle gas turbines. The applicant confirmed with GE that the proposed CTGs will be able to meet the 4 ppmvd, but GE would not provide a performance guarantee for that level. The issuance of the P/Cs was based on 4 ppmvd. The initial source test reports indicate compliance with the 4 ppmv limit for all four turbines.

**b. Pending Applications**

No pending applications, because no modifications are involved with the increase in startup emissions for CO.

**EMISSIONS CALCULATIONS**

**1. Prior Permits A/N 476651, 476656, 476659, 476661**

The four identical CTGs emit combustion emissions.

○ **Worst Case Operating Scenario**

To determine the worst case operating scenario that yields the highest controlled emissions, the applicant provided nine operating scenarios corresponding to a full range of possible turbine loads and ambient temperatures, which bound the expected normal operating range of each proposed CTG. The operating scenarios were for three load conditions (50%, 75%, and 100%) at three ambient temperatures (38 °F, 59 °F, and 109 °F), with or without evaporative cooling of the inlet air to the turbines. For each

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 23
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

scenario, GE provided the average hourly controlled emission rates, and stack and operating parameters for normal operation.

The five cases that resulted in the highest controlled emission rates are summarized in the table below.

**Table 10 - Worst Case Operating Scenarios, Normal Operation**

	1	2	4	5	7
Ambient Temperature, °F	109	109	59	59	38
CTG Load Level (%)	100	75	100	75	100
Evaporative Cooler	ON	ON	ON	NONE	NONE
Heat Consumed, (MMBTU/hr) – LHV	427.3	341.6	433.6	342.5	432.3
Heat Consumed, (MMBTU/hr) – HHV	473.6	378.6	480.6	379.6	479.2
Turbine Outlet Temperature (°F)	841.6	858.9	838.6	785.5	836.7
<b>Average Emissions Rates, lbs/hr</b>					
NOx at 2.3 ppmvd BACT	3.81	2.94	<b>3.98</b>	2.94	3.71
CO at 4.0 ppmvd BACT	4.19	3.34	<b>4.24</b>	3.34	4.23
VOC at 2.0 ppmvd BACT	1.19	0.95	<b>1.20</b>	0.95	1.20
PM <sub>10</sub>	2.95	2.36	<b>3.00</b>	2.37	2.99
SO <sub>2</sub> short-term rate (1 grain/100 dscf)	1.34	1.07	<b>1.36</b>	1.07	1.35
SO <sub>2</sub> long-term rate (0.25 grain/100 dscf)	0.33	0.27	<b>0.34</b>	0.27	0.34
NH <sub>3</sub> at 5 ppmvd BACT	3.59	2.86	<b>3.64</b>	2.83	3.59

Case 4 is the worst case operating scenario. These emissions rates are the same as BACT limits and correspond to the performance warranty levels, with the exception of CO. CO is at 4 ppmvd which is lower than the BACT limit (prior to this project) and performance warranty level of 6 ppmvd.

- **Four Operational Modes**

CTGs operate in four operational modes: commissioning, start-up, normal operation, and shutdown. The emissions from the four operating modes are calculated differently, but all were based on the operating parameters for case 4.

- **Commissioning**

For the P/Cs, the applicant requested that the maximum VOC, SO<sub>x</sub>, and PM<sub>10</sub> emissions in any one month during the commissioning period not

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 24
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

exceed the maximum emissions during a normal operating month. These maximum emissions are shown in Table 20, below, and established the offset requirements. Thus this evaluation will not discuss commissioning emissions quantitatively.

- **Start-up of CTGs**

Start-ups begin with the initial firing and continue until each unit complies with the permitted emission concentration limits. During start-up operations, the turbine operates at elevated NO<sub>x</sub>, CO, and VOC average concentration rates due to the phased-in effectiveness of the SCR reactor and CO oxidation catalysts.

Startup/Shutdown Cycles, Annual and Monthly—The applicant requested 240 startup/shutdown cycles per *year* for each turbine for all years, and 20 startup/shutdown cycles per *month* for each turbine for all years.

Startup Duration—The applicant requested 35 minutes per start-up event. In addition, the maximum hourly turbine startup emissions was requested to accommodate a full startup sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.

Startup/Shutdown Emissions—The applicant provided two tables—(1) Revised 72-Minute Sequence of Normal Startup and Emission Control with Turbine Trip and Restart, and (2) Pollutant Emissions for a 10-Minute Shutdown Sequence for Individual Turbine--showing the minute-by-minute emissions for startups and shutdowns, respectively, in Appendix E of the revised Application, dated September 2008. The tables are reproduced below.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 25
	APPL. NO. 531829, 531831, 531832, 531833, 531827	DATE 2/16/2012
	PROCESSED BY V. Lee	CHECKED BY

**Table 13**  
**Revised Turbine Startup Sequence for a Normal 35–Minute Startup Event,**  
**Turbine Trip, Purge for 5 Minutes, then Restart**

			Stack emissions per Turbine											
Time (min)	CT Δ time	SCR Δ time	NOx		CO		ROG		PM10		SOx @ 0.25 gr		SOx @ 1 gr	
			(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total
0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1		18.00	0.30	0.22	0.4	2.50	0.04	0.63	0.01	0.07	0.00	0.28	0.00
2			18.00	0.60	0.22	0.7	2.50	0.08	0.63	0.02	0.07	0.00	0.28	0.01
4			18.00	1.20	0.22	1.5	2.50	0.17	0.63	0.04	0.07	0.00	0.28	0.02
6	5		18.00	1.80	10.0	1.8	2.25	0.24	0.63	0.06	0.07	0.01	0.28	0.03
8	2		18.00	2.40	10.0	2.1	2.25	0.32	0.63	0.08	0.07	0.01	0.28	0.04
10			50.00	4.07	4.5	2.3	0.36	0.33	1.16	0.12	0.13	0.01	0.51	0.05
12		12	26.00	4.93	6.8	2.5	0.90	0.36	1.69	0.18	0.19	0.02	0.74	0.08
14			33.00	6.03	3.1	2.6	0.90	0.39	2.22	0.25	0.24	0.03	0.97	0.11
15		3	38.00	6.67	3.5	2.7	0.90	0.40	2.48	0.29	0.27	0.03	1.09	0.13
16			15.49	6.92	3.7	2.7	0.99	0.42	2.75	0.34	0.30	0.04	1.20	0.15
17	9		16.63	7.20	4.2	2.8	1.13	0.44	3.01	0.39	0.33	0.04	1.32	0.17
18			15.93	7.47	4.2	2.9	1.17	0.46	3.01	0.44	0.33	0.05	1.32	0.19
20			14.52	7.95	4.2	3.0	1.17	0.50	3.01	0.54	0.33	0.06	1.32	0.24
22			13.11	8.39	4.2	3.2	1.17	0.54	3.01	0.64	0.33	0.07	1.32	0.28
24			11.71	8.78	4.2	3.3	1.17	0.58	3.01	0.74	0.33	0.08	1.32	0.33
26			10.30	9.12	4.2	3.4	1.17	0.61	3.01	0.84	0.33	0.09	1.32	0.37
28			8.90	9.42	4.2	3.6	1.17	0.65	3.01	0.94	0.33	0.10	1.32	0.41
30			7.49	9.67	4.2	3.7	1.17	0.69	3.01	1.04	0.33	0.11	1.32	0.46
32			6.09	9.87	4.2	3.8	1.17	0.73	3.01	1.14	0.33	0.13	1.32	0.50
34			4.68	10.03	4.2	4.0	1.17	0.77	3.01	1.24	0.33	0.14	1.32	0.55



**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

*ENGINEERING AND COMPLIANCE DIVISION*

**APPLICATION PROCESSING AND CALCULATIONS**

PAGES

44

PAGE

26

APPL. NO.

531829, 531831, 531832,  
531833, 531827

DATE

2/16/2012

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			Stack emissions per Turbine											
Time (min)	CT Δ time	SCR Δ time	NO <sub>x</sub>		CO		ROG		PM10		SO <sub>x</sub> @ 0.25 gr		SO <sub>x</sub> @ 1 gr	
			(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total
35		18	3.98	10.09	4.2	4.1	1.17	0.79	3.01	1.29	0.33	0.14	1.32	0.57
36			0.00	10.09	0	4.1	0.00	0.79	0.00	1.29	0.00	0.14	0.00	0.57
38			0.00	10.09	0	4.1	0.00	0.79	0.00	1.29	0.00	0.14	0.00	0.57
40	5		0.00	10.09	0	4.1	0.00	0.79	0.00	1.29	0.00	0.14	0.00	0.57
40	0		0.00	10.09	0	4.1	0.00	0.79	0.00	1.29	0.00	0.14	0.00	0.57
41	1	0	18.00	10.39	22	4.4	2.50	0.83	0.63	1.30	0.07	0.14	0.28	0.57
42			18.00	10.69	10.0	4.6	2.33	0.87	0.63	1.31	0.07	0.14	0.28	0.58
43		2	6.80	10.81	10.0	4.8	2.33	0.91	0.63	1.32	0.07	0.15	0.28	0.58
44			6.80	10.92	10.0	4.9	2.33	0.95	0.63	1.34	0.07	0.15	0.28	0.59
46	5		6.80	11.15	10.0	5.3	2.33	1.03	0.63	1.36	0.07	0.15	0.28	0.60
48	2		6.80	11.37	10.0	5.6	2.33	1.10	0.63	1.38	0.07	0.15	0.28	0.60
50			18.90	12.00	2.2	5.7	0.45	1.12	1.16	1.42	0.13	0.16	0.51	0.62
52			9.83	12.33	3.3	5.8	0.90	1.15	1.69	1.47	0.19	0.16	0.74	0.65
54			12.47	12.75	3.1	5.9	0.90	1.18	2.22	1.55	0.24	0.17	0.97	0.68
56			15.49	13.26	3.7	6.0	0.99	1.21	2.75	1.64	0.30	0.18	1.20	0.72
57	9		16.63	13.54	4.2	6.1	1.13	1.23	3.01	1.69	0.33	0.19	1.32	0.74
58			15.78	13.80	4.2	6.1	1.17	1.25	3.01	1.74	0.33	0.19	1.32	0.76
60			14.10	14.27	4.2	6.3	1.17	1.29	3.01	1.84	0.33	0.20	1.32	0.81
72		15	3.98	15.07	4.18	7.12	1.17	1.52	3.01	2.44	0.33	0.27	1.32	1.07

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 27
	APPL. NO. 531829, 531831, 531832, 531833, 531827	DATE 2/16/2012
	PROCESSED BY V. Lee	CHECKED BY

**Table 14A-- Revised Turbine Shut-Down Sequence for a 10–Minute Shutdown**

**Stack emissions per turbine**

Time (min)	NOx		CO		ROG		PM10		SOx @ .25gr		SOx @ 1gr	
	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total	(#/hr)	# total
0	3.98	0.00	4.24	0.00	1.17	0.00	3.01	0.00	0.33	0.00	1.32	0.02
1	6.53	0.11	2.86	0.05	0.99	0.02	2.52	0.04	0.28	0.00	1.11	0.04
2	5.26	0.20	3.30	0.10	0.81	0.03	2.03	0.08	0.22	0.01	0.89	0.06
3	4.17	0.27	2.42	0.14	0.63	0.04	1.58	0.10	0.17	0.01	0.69	0.07
4	2.90	0.31	1.56	0.17	0.45	0.05	1.14	0.12	0.13	0.01	0.50	0.08
5	6.35	0.42	3.08	0.22	2.25	0.09	0.63	0.13	0.07	0.01	0.28	0.08
6	3.27	0.47	4.84	0.30	2.25	0.12	0.63	0.14	0.07	0.02	0.28	0.08
7	3.27	0.53	4.84	0.38	2.25	0.16	0.63	0.15	0.07	0.02	0.28	0.09
8	3.27	0.58	4.84	0.46	2.25	0.20	0.63	0.16	0.07	0.02	0.28	0.09
9	3.27	0.64	4.84	0.54	2.25	0.24	0.63	0.17	0.07	0.02	0.28	0.10
10	3.27	0.69	4.84	0.62	2.25	0.27	0.63	0.18	0.07	0.02	0.28	0.10

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 28
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Startup Conditions--Condition nos. A99.1, A99.2, and A99.3 limit each startup to 35 minutes, and the number of starts/shutdowns to 240 per year. The conditions also set the emissions limits for NO<sub>x</sub>, CO, and ROG, respectively, for an hour for the worst case which includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence. The conditions also limit each startup to 35 minutes, and the number of startups and shutdowns to 240 per year. The maximum hourly emissions limits are from Table 13 above for cumulative emissions at 60 minutes. For CO, the limit is 6.3 lb/hr. (The air quality modeling for the 1-hr averaging time for the start-up scenario reflects the hourly emission rate for CO of 6.3 lb/hr.)

- **Normal Operation**

The emissions during normal operations are assumed to be fully controlled to Best Available Control Technology (BACT) levels, and exclude emissions due to commissioning, start up and shutdown periods, which are not subject to BACT levels.

Operating Hours, Annual and Monthly—The applicant requested 1080 hours per *year* for a normal operating year, and 90 hrs per *month* of normal operation for each turbine.

- **Overview of Emissions Calculations**

The emissions calculations for a power plant are complex because the emissions from the four operating modes must be considered. The following sections will discuss hourly emissions, startup and shutdown emissions, and monthly emissions, as well as permit condition limits. Finally, the calculation of NSR entries will be discussed.

- **Hourly Emission Rates**

Normal Operation

The maximum controlled hourly emission rates for normal operations that will be used to calculate turbine emissions are summarized in the table below. The emission rates are for Case 4 from Table 10 above.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 29
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**Table 16-Maximum Hourly Emissions, Normal Operations, per CTG**

Pollutants	Emission Rate, lb/hr
NO <sub>x</sub> at 2.3 ppmvd	3.98
CO at 4.0 ppmvd	4.24
VOC at 2.0 ppmvd	1.20
PM <sub>10</sub>	3.00
SO <sub>2</sub> at 0.25 grain/100 dscf	0.34
NH <sub>3</sub> at 5 ppmvd	3.64

- **Startup and Shutdown Emissions**

The emissions per startup and shutdown events that will be used to calculate turbine emissions are summarized below in the table below.

**Table 17 – Startup and Shutdown Emissions, per CTG**

Pollutants	Startup, lbs/event	Shutdown, lbs/event
NO <sub>x</sub>	10.09	0.69
CO	4.10	0.62
VOC	0.79	0.27
PM <sub>10</sub>	1.29	0.18
SO <sub>x</sub> at 0.25 gr/100 dscf	0.14	0.02

For startups, the lbs/event are taken from Table 13 above for cumulative emissions at 35 minutes, which is the duration of a startup.

For shutdowns, the lbs/event are taken from Table 14A above for cumulative emissions at 10 minutes, which is the duration of a shutdown.

- **Monthly Emissions per Turbine**

**Commissioning Month**

The applicant requested that the maximum VOC, SO<sub>x</sub>, and PM<sub>10</sub> in any one month during the commissioning period not exceed the maximum emissions during a normal operating month.

**Normal Operating Month**

The maximum normal operating month emissions are shown in the table below.

<p><b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b></p> <p><i>ENGINEERING AND COMPLIANCE DIVISION</i></p> <p><b>APPLICATION PROCESSING AND CALCULATIONS</b></p>	PAGES 44	PAGE 30
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**Table 20—Maximum Monthly Emissions, Normal Operations, per CTG**

Pollutants	No. of Normal Operating Hrs	Normal Operation Emission Rate, lb/hr	No. of Startups	lb/startup	No. of Shutdowns	lb/shutdown	Maximum Monthly Emissions lb/month
NO <sub>x</sub>	90	3.98	20	10.09	20	0.69	573.80
CO	90	4.24	20	4.10	20	0.62	<b>476.00</b>
VOC	90	1.2	20	0.79	20	0.27	<b>129.20</b>
PM <sub>10</sub>	90	3.00	20	1.29	20	0.18	<b>299.40</b>
SO <sub>x</sub>	90	0.34	20	0.14	20	0.02	<b>33.80</b>

Maximum Monthly Emissions, lb/day = (no. normal operating hours) (normal emission rate)  
+ (no. startups) (lb/startup) + (no. shutdowns) (lb/shutdown)

These emissions are based on the maximum of 90 hours normal operation and 20 startups and shutdowns per CTG requested by the applicant. This translates to 105 hr max/month.

Permit Conditions—Monthly Emissions Limits

Condition A63.1 specifies the monthly emissions limits for VOC, PM<sub>10</sub>, and SO<sub>x</sub> because Rule 1313(g) requires a monthly emission limit for non-attainment pollutants to establish a basis for calculating offset requirements. **A monthly limit was not required for CO because it is in attainment and not a precursor to any nonattainment pollutant.** As requested by the applicant, the maximum monthly emissions limits was based on a normal operating month

- **New Source Review Entries**

- Operating Schedule

Operating Schedule: 52 wks/yr, 7 days/wk, 24 hrs/day  
(Actual operating schedule will depend on the need for operation.)

The maximum monthly emissions for each CTG are from Table 20, above.

The emissions calculations are for *each* CTG—

- NO<sub>x</sub>

Actual controlled = 2.3 ppm = 3.98 lb/hr  
Actual uncontrolled = 25 ppm with water injection = 43.64 lb/hr  
(provided by Express Integrated Technologies)

To calculate control efficiency:

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 31
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

$$\text{Control efficiency} = [(43.64 - 3.98)/43.64] \times 100\% = 90.88\%$$

To calculate R2:

$$\text{Lb/day} = [573.80 \text{ lb/month (see Table 20)}] (\text{month}/30 \text{ days})$$

$$= 19.13 \text{ lb/day}$$

$$\text{Lb/hr} = (19.13 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 0.80 \text{ lb/hr}$$

$$30\text{-DA} = (0.80 \text{ lb/hr}) (24 \text{ hr/day}) = 19.2 \text{ lb/day (from NSR Data Summary Sheet)}$$

To calculate R1:

$$\text{Lb/day, uncontrolled} = (19.13 \text{ lb/day}) / (1 - 0.9088)$$

$$= \underline{209.76} \text{ lb/day}$$

$$\text{Lb/hr, uncontrolled} = (\underline{209.76} \text{ lb/day}) (\text{day}/24 \text{ hr})$$

$$= \underline{8.74} \text{ lb/hr}$$

○ CO

$$\text{Actual controlled} = 4.0 \text{ ppm} = 4.24 \text{ lb/hr}$$

$$\text{Actual uncontrolled} = 53 \text{ ppm (provided by Express Integrated Technologies)} = 56.18 \text{ lb/hr}$$

To calculate control efficiency:

$$\text{Control efficiency} = [(56.18 - 4.24)/56.18] \times 100\% = 92.45\%$$

To calculate R2:

$$\text{Lb/day} = [476 \text{ lb/month (Table 20)}] (\text{month}/30 \text{ days})$$

$$= 15.87 \text{ lb/day}$$

$$\text{Lb/hr} = (15.87 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 0.66 \text{ lb/hr}$$

$$30\text{-DA} = (0.66 \text{ lb/hr}) (24 \text{ hr/day}) = 15.84 \text{ lb/day (from NSR Data Summary Sheet)}$$

To calculate R1:

$$\text{Lb/day, uncontrolled} = (15.87 \text{ lb/day}) / (1 - 0.9245) = 210.20 \text{ lb/day}$$

$$\text{Lb/hr, uncontrolled} = (210.20 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 8.76 \text{ lb/hr}$$

○ ROG

$$\text{Actual controlled} = 2.0 \text{ ppm} = 1.2 \text{ lb/hr}$$

$$\text{Actual uncontrolled} = 3 \text{ ppm (provided by Express Integrated Technologies)} = 1.8 \text{ lb/hr}$$

To calculate control efficiency:

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 44	<b>PAGE</b> 32
	<b>APPL. NO.</b> 531827, 531829, 531831, 531832, 531833	<b>DATE</b> 2/17/2012
	<b>PROCESSED BY</b> V. Lee	<b>CHECKED BY</b>

$$\text{Control efficiency} = [(1.8 - 1.2)/1.8] \times 100\% = 33.33\%$$

To calculate R2:

$$\begin{aligned} \text{Lb/day} &= [129.2 \text{ lb/month (Table 20)}] (\text{month}/30 \text{ days}) \\ &= 4.31 \text{ lb/day} \end{aligned}$$

$$\text{Lb/hr} = (4.31 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 0.18 \text{ lb/hr}$$

$$30\text{-DA} = (0.18 \text{ lb/hr}) (24 \text{ hr/day}) = 4.32 \text{ lb/day (from NSR Data Summary Sheet)}$$

To calculate R1:

$$\begin{aligned} \text{Lb/day, uncontrolled} &= (4.31 \text{ lb/day}) / (1 - 0.3333) = 6.46 \text{ lb/day} \\ \text{Lb/hr, uncontrolled} &= (6.46 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 0.27 \text{ lb/hr} \end{aligned}$$

○ PM<sub>10</sub>

$$\text{Actual controlled} = \text{Actual uncontrolled} = 3 \text{ lb/hr}$$

Thus, control efficiency = 0%

To calculate R2 and R1:

$$\begin{aligned} \text{Lb/day} &= [299.4 \text{ lb/month (Table 20)}] (\text{month}/30 \text{ days}) \\ &= 9.98 \text{ lb/day} \end{aligned}$$

$$\text{Lb/hr} = (9.98 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 0.42 \text{ lb/hr}$$

$$30\text{-DA} = (0.42 \text{ lb/hr}) (24 \text{ hr/day}) = 10.08 \text{ lb/day (from NSR Data Summary Sheet)}$$

○ SO<sub>x</sub>

$$\begin{aligned} \text{Actual controlled} &= \text{Actual uncontrolled} = 0.34 \text{ lb/hr} \\ &\text{(based on 0.25 gr/100 scf average natural gas sulfur content)} \\ \text{Thus, control efficiency} &\text{ is 0\%.} \end{aligned}$$

To calculate R2 and R1:

$$\begin{aligned} \text{Lb/day} &= [33.8 \text{ lb/month (Table 20)}] (\text{month}/30 \text{ days}) \\ &= 1.13 \text{ lb/day} \end{aligned}$$

$$\text{Lb/hr} = (1.13 \text{ lb/day}) (\text{day}/24 \text{ hr}) = 0.047 \text{ lb/hr}$$

$$30\text{-DA} = (0.05 \text{ lb/hr}) (24 \text{ hr}) = 1.2 \text{ lb/day (from NSR Data Summary Sheet)}$$

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 33
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

2. **Proposed A/N 531829, 531831, 531832, 531833**

The 30-day averages for NO<sub>x</sub>, ROG, PM<sub>10</sub>, and SO<sub>x</sub> will not change as a result of the increase in CO start-up emissions.

The 30-day average for CO will not change because it is dependent on the CO emissions for a 35-minute start-up event (no change), not the maximum hourly start-up emissions (increase from 6.3 lb/hr to 11.6 lb/hr).

**RULE EVALUATION**

• **District Rules and Regulations**

**Rule 212-Standards for Approving Permits**

**Rule 2005(h) – RECLAIM Public Notice**

Rule 212(c) provides that a project with a net emission increase requires public notice prior to the issuance of a permit if: **(1)** the equipment is located within 1,000 feet of the outer boundary of a school; **(2)** on-site emission increase exceeds any of the daily maximums specified in Rule 212(g); or **(3)** the MICR is equal to or greater than one in a million (1E-6) during a lifetime (70 years) for equipment under Regulation XXX unless the applicant demonstrates to the satisfaction of the Executive Officer that the total facility-wide maximum individual cancer risk is below ten in a million (10E-06).

As discussed above under Emissions Calculations, the 30-day averages for the criteria pollutants will not change. As discussed below under Rule 1401, the toxic air contaminant emissions will not change. Therefore, public notice is not required.

**Rule 401 – Visible Emissions**

This rule prohibits the discharge of visible emissions for a period aggregating more than three minutes in any one hour which is as dark or darker in shade than Ringelmann No. 1. Visible emissions are not expected under normal operation from the CTGs because they are fueled by natural gas.

**Rule 402 - Nuisance**

This rule requires that a person not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which cause, or have a natural tendency to cause injury or damage to business or property. A search of the AQMD compliance database indicates no nuisance complaints have been received from the public.



<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 34
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**Rule 407 – Liquid and Gaseous Air Contaminants**

This rule applies to the CTGs and limits CO emissions to 2000 ppmv. The initial source tests indicate the CO emissions from the four turbines are being controlled by an oxidation catalyst to 4 ppmvd at 15% O<sub>2</sub>.

**NEW SOURCE REVIEW (NSR) ANALYSIS**

- **Rule 1303(a)(1)—BACT (CO, VOC, PM<sub>10</sub>, SO<sub>x</sub>)**
- **Rule 1703(a)(2)—PSD-BACT (NO<sub>x</sub>, CO, and SO<sub>x</sub>)**
- **Rule 2005(b)(1)(A)—BACT (NO<sub>x</sub>)**

Best Available Control Technology (BACT) is required for a modified source which results in an emission increase that is greater than 1 lb/day of any criteria pollutant, any ozone depleting compound, or ammonia. The bases for the applicability of each rule is discussed below.

Rule 1703(a)(2)-- As explained below under REGULATION XVII – Prevention of Significant Deterioration, this rule requiring BACT for attainment air contaminants is applicable to CPP. Since the District is presently in attainment with NAAQS for NO<sub>x</sub>, CO, and SO<sub>x</sub>, this rule is applicable to those pollutants.

Rule 1303(a)(1)—This rule, as amended 12/6/02, requires BACT for nonattainment air contaminants. The District is not in attainment for PM<sub>10</sub> and ozone, but is in attainment for NO<sub>x</sub>, CO, and SO<sub>x</sub>. However, since NO<sub>x</sub>, SO<sub>x</sub>, and VOC are precursors to non-attainment pollutants, they are treated as non-attainment pollutants as well. NO<sub>x</sub> and VOC are precursors to ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. SO<sub>x</sub> is a precursor to PM<sub>10</sub> and PM<sub>2.5</sub>. Thus, this rule requires BACT for PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>x</sub>, and VOC.

Rule 2005(b)(1)(A)—This rule requires BACT for NO<sub>x</sub> emissions for RECLAIM facilities.

**1. Prior Permits A/N 476651, 476656, 476659, 476661**

- **AQMD BACT Compliance Determination**

Prior to this project, the BACT/LAER guidelines for simple cycle gas turbines were based on the AQMD permits issued to the City of Riverside Public Utilities Department on 4/28/05. The guidelines are set forth in the table below.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 35
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**Table 31—Simple Cycle Gas Turbine MSBACT/LAER Requirements**

	NO <sub>x</sub>	CO*	VOC	PM <sub>10</sub> /SO <sub>x</sub>	NH <sub>3</sub>
Simple Cycle Gas Turbine BACT Limits	2.5 ppmvd @ 15% O <sub>2</sub> , 1-hr average	6.0 ppmvd @ 15% O <sub>2</sub> , 1-hr average*	2.0 ppmvd @ 15% O <sub>2</sub> , 1-hr average	PUC quality natural gas with sulfur content ≤ 1 grain/100 scf	5.0 ppmvd @ 15% O <sub>2</sub> , 1-hr average

The warranted emissions levels for normal operation for the proposed CTGs controlled with selective catalytic reduction and CO oxidation catalyst are shown in the table below. Thus, the proposed CTGs were expected to meet the BACT/LAER standards.

**Table 32—General Electric Guaranteed Emissions Levels**

	NO <sub>x</sub>	CO*	VOC	PM <sub>10</sub> /SO <sub>x</sub>	NH <sub>3</sub>
GE Performance Guarantee	2.3 ppmvd @ 15% O <sub>2</sub>	6.0 ppmvd @ 15% O <sub>2</sub>	2.0 ppmvd @ 15% O <sub>2</sub>	PUC quality natural gas with sulfur content ≤ 1 grain/100 scf	5 ppmvd @ 15% O <sub>2</sub>

\* For CPP, the BACT limit for CO was 4.0 ppmvd, instead of the 6.0 ppmvd, because the District had sufficient test results for initial and periodic monitoring source testing for LM6000 turbines installed at existing power plants to demonstrate the 4.0 ppmvd to be achieved in practice. Further, the applicant has confirmed with GE that the 4.0 will be consistently achievable. The initial source tests indicate the four turbines meet the 4 ppmvd limit.

Condition no. A99.1, A99.2, and A99.3 provides that the BACT limits of 2.5 ppm NO<sub>x</sub>, 4.0 ppm CO, and 2.0 ppm ROG shall not apply during startup.

During startups, it is not technically feasible for the CTGs to meet BACT limits during the entire startup because the SCR and CO catalysts that are used to achieve the required emissions reductions are not fully effective when the surface of the catalysts are below the manufacturers' recommended operating range. (See Table 13 above for the startup emissions profile.) The water injection into the CTGs, however, does reduce the NO<sub>x</sub> emissions to 25 ppmv prior to entry into the SCR and CO catalysts. To limit startup emissions, condition nos. A99.1, A99.2, and A99.3 limit each startup to 35 minutes and limit the number of startups to 240 per year. Further, these conditions limit hourly startup emissions. For CO, the hourly startup emissions were limited to 6.3 pounds. The worse case for hourly emissions included a full startup, a 5 minute purge period, and the first 20 minutes of a restart.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 36
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**2. Proposed A/N 531829, 531831, 531832, 531833**

As indicated by the initial source tests, the four turbines are meeting BACT limits.

The EPA requires a mass emissions limit condition, either on an hourly or per start-up basis, to ensure that the turbines are running efficiently during start-up periods when BACT is not applicable. The limit in condition A99.2 will be increased from 6.3 pounds to 11.6 pounds. The 11.6 pounds is reasonable because that is the hourly CO emissions limit for the LM6000 GE units at the City of Riverside facility (ID 139796).

- **Rule 1303(b)(1)–Modeling**
- **Rule 2005(b)(1)(B)-Modeling**

Rule 1303(b)(1) requires air dispersion modeling to substantiate that a new permit unit or modification that results in a net emission increase of any nonattainment air contaminant at a facility will not cause a violation, or make significantly worse an existing violation according to Table A-2 of the rule, of any state or national ambient air quality standards at any receptor location in the District. The standards are for NO<sub>2</sub> (non-RECLAIM facility), CO, PM<sub>10</sub>, and sulfate. Rule 2005(b)(1)(B) requires modeling for NO<sub>2</sub> for RECLAIM facilities.

Compliance determination is different for attainment and nonattainment pollutants. For the attainment pollutants, NO<sub>2</sub>, CO, and SO<sub>2</sub>, the project impact plus the background concentration should not exceed the most stringent air quality standard. For the non-attainment pollutant, PM<sub>10</sub>, the project impact should not exceed the significant change in air quality concentration.

The standards in Rule 1303 Table A-2, as amended December 6, 2005, are outdated. The modeling results provided by the applicant, see below, used the current ambient air quality standards.

**1. Prior Permits A/N 476651, 476656, 476659, 476661**

For the FDOC, the applicant provided a revised modeling analysis for air quality modeling on September 12, 2008, for an individual turbine for normal operations, startup, and commissioning. Modeling is not required for the shutdown mode, because startup emissions are higher than shutdown emissions. The modeling was performed for NO<sub>x</sub>, CO, SO<sub>x</sub>, and PM<sub>10</sub> using the EPA AERMOD dispersion model (Version 07026).

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 37
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

Further, the modeling included the black start engine and the cooling tower. The black start engine is exempt from air quality modeling due to Rule 1304(a)(4) and Rule 2005(k)(5), and the cooling tower is exempt from air quality modeling because it is exempt from permitting. However, the CEC requires air quality modeling for the engine and cooling tower to demonstrate CEQA compliance.

The revised modeling analysis was supplemented with a second revised modeling analysis for air quality modeling and health risk assessment submitted on December 16, 2008, for the increased annual emissions for the turbines.

#### Normal Operation

For CO emissions, the modeling for the 1-hour and 8-hour averaging periods were based on normal operations, with no startups. Therefore, the proposed increase in CO startup emissions will not affect this case.

#### Startup

For CO, the table below shows that during startups, the highest predicted concentration for any CTG plus the background concentration does not exceed the most stringent air quality standard for 1-hr and 8-hr.

**Table 38--Model Results – Startup-Individual Turbine  
(6.8 LB/HR CO START-UP EMISSIONS)**

Pollu- Tant	Avera- ging Period	Maximum Predicted Concentration (µg/m³)				Background Concentration (µg/m³)	Highest Predicted CTG Concentration Plus Background Concentration (µg/m³)	Most Stringent Air Quality Standard (µg/m³)	Comply (Yes /No)
		CTG 1	CTG 2	CTG 3	CTG 4				
NO <sub>2</sub>	1-hour	7.80	7.87	7.85	7.77	229.1	236.97	338	Yes (6.3 lb/hr CO)
CO	1-hour	2.95	2.95	2.93	2.95	8,510	8512.95	23,000	Yes (6.3 lb/hr CO)
	8-hour	1.51	1.51	1.51	1.51	4,544	4545.51	10,000	Yes (6.3 lb/hr CO)

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 38
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

The following modeled emission rates during startup table (not included in FDOC) is from the Request for Modeling Review No. 3, dated 12/19/08, which summarized the revised modeling package submitted by URS on 12/16/08.

### Modeled Emission Rates – Startup-Individual Turbine

Pollutant	Averaging Time	Per-Turbine Emissions (g/s)	Note
NO <sub>x</sub>	1-hour	1.798 (14.27 lb/hr)	Includes 35-minute startup, turbine trip, 5 minute purge and first 20 minutes of restart
CO	1-hour	0.791 (6.28 lb/hour)	Includes 35-minute startup, turbine trip, 5 minute purge and first 20 minutes of restart
	8-hour	0.57 (4.49 lb/hour)	1.2 hour start/purge/restart scenario plus 6.8 hours of normal operations.

1-hour CO: Based on full startup (35 minutes) followed by 5-minute purge and then first 20 minutes of restart.

8-hour CO: Modeling for this pollutant and averaging time will be based on full 1.2 hour start/purge/restart scenario and then 6.8 hours of normal full-load operation. This results in a maximum 8-hour average emission rate, i.e., higher than with more of the period filled with normal full-load operations.

## 2. **Proposed A/N 531829, 531831, 531832, 531833**

The increase in start-up emissions for CO affects the results in Table 38.

The 1-hour emissions will be increased from 6.28 lb/hour to 11.6 lb/hr. The maximum predicted concentration for 1-hr in Table 38 will be multiplied by 1.85 ( $11.6 / 6.28 = 1.85$ ) to approximate the effect of the increase in emissions.

The 8-hour emissions included 1.2 hour start/purge/restart plus 6.8 hours of normal operation. The 8-hour emissions will be increased from 4.9 lb/hr to 5.6 lb/hr {calculated as  $4.9 \text{ lb/hr} + [(11.6 \text{ lb/hr} - 6.3 \text{ lb/hr}) / 8 \text{ hr}]$ }. The maximum predicted concentration for 8-hr in Table 38 will be multiplied by 1.14 ( $5.6 / 4.9 = 1.14$ ) to approximate the effect of the increase in emissions.

For CO, the revised table below shows that during startups, even with the increase in startup emissions from 6.3 lb/hr to 11.6 lb/hr, the highest predicted concentration for any CTG plus the background concentration continues to not exceed the most stringent air quality standard for 1-hr and 8-hr.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 39
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

**Table 38--Model Results – Startup-Individual Turbine  
(REVISED FOR 11.6 LB/HR CO START-UP EMISSIONS)**

Pollu- Tant	Avera- ging Period	Maximum Predicted Concentration (µg/m³)				Background Concentration (µg/m³)	Highest Predicted CTG Concentration Plus Background Concentration (µg/m³)	Most Stringent Air Quality Standard (µg/m³)	Comply (Yes /No)
		CTG 1	CTG 2	CTG 3	CTG 4				
NO <sub>2</sub>	1-hour	7.80	7.87	7.85	7.77	229.1	236.97	338	Yes
CO	1-hour	2.95 x 1.85 = <u>5.46</u>	<del>2.95</del> <u>5.46</u>	<del>2.93</del> <u>5.42</u>	<del>2.95</del> <u>5.46</u>	8,510	<del>8542.95</del> <u>8515.46</u>	23,000	<u>Yes for 11.6 lb/hr CO</u>
	8-hour	1.51 x 1.14 = <u>1.72</u>	<del>1.51</del> <u>1.72</u>	<del>1.51</del> <u>1.72</u>	<del>1.51</del> <u>1.72</u>	4,544	<del>4545.51</del> <u>4545.72</u>	10,000	<u>Yes for 11.6 lb/hr CO</u>

- **Rule 1303(b)(2)-Offsets**
- **Rule 2005(b)(2)-Offsets**

As discussed under Emissions Calculations above, the 30-day averages will not change.

**Rule 1401 – New Source Review of Toxic Air Contaminants**

**Rule 2005(i) – RECLAIM Rule 1401 Compliance**

**1. Prior Permits A/N 476651, 476656, 476659, 476661**

For the FDOC, the toxic pollutant emissions were calculated based on emission factors provided in terms of lb/MMBtu or lb/MMcf. Therefore the emissions were dependent on the maximum annual operating hours.

Maximum annual operating hours =

[12 months/yr] [(90 hr/month) + (20 start-ups) (35 min/startup) (hr/60 min) + (20 shutdowns) (10 min/start-up) (hr/60 min)] = 1260 hrs/yr.

**2. Proposed A/N 531829, 531831, 531832, 531833**

The 35 min/startup limit set forth in condition nos. A99.1, A99.2, and A99.3 was used in the calculation of the maximum annual operating hours. Since the 35 min/hr will not change, the maximum annual operation hours will not change. Consequently, the toxic pollutant emissions will not change. Therefore, risk assessment requirements are not triggered.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 40
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

### **REGULATION XVII – Prevention of Significant Deterioration**

The federal Prevention of Significant Deterioration (PSD) has been established to protect deterioration of air quality in those areas that already meet the NAAQS. This regulation sets forth preconstruction review requirements for stationary sources to ensure that air quality in clean air areas does not significantly deteriorate while maintaining a margin for future industrial growth. Specifically, the PSD program establishes allowable concentration increases for attainment pollutants due to new or modified emission sources that are classified as major stationary sources.

Effective upon delegation by EPA, this regulation shall apply to preconstruction review of stationary sources that emit attainment air contaminants. On 3/3/03, EPA rescinded its delegation of authority to the AQMD. On 7/25/07, the EPA and AQMD signed a new “Partial PSD Delegation Agreement.” The agreement is intended to delegate the authority and responsibility to the District for issuance of initial PSD permits and for PSD permit modifications where the applicant does not seek to use the emissions calculation methodologies promulgated in 40 CFR 52.21 (NSR Reform) but not set forth in AQMD Regulation XVII. The Partial Delegation agreement also did not delegate authority and responsibility to AQMD to issue new or modified PSD permits based on Plant-wide Applicability Limits (PALS) provisions of 40 CFR 52.21.

#### **1. Prior Permits A/N 476651, 476656, 476659, 476661**

**Rule 1701(b)(1)** provides that BACT requirements applies to a net emission increase of a criteria air contaminant from a permit unit at any source. **Rule 1703(a)(2)** requires each permit unit to be constructed using BACT for each criteria air contaminant for which there is a net emission increase. The District is presently designated in attainment with NAAQS for sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead. The BACT analysis is presented above under the New Source Review Analysis discussion.

**Rule 1701(b)(2)** provides that all of the requirements of this regulation apply, except exempted in Rule 1704, to a new source or modification at an existing source where the increase in potential to emit is at least 100 or 250 tons of attainment air contaminants per year, depending on the source category. The 250 tpy threshold limit is applicable to the CPP, because it is not one of the 28 source categories subject to the 100 tpy threshold listed in Rule 1702(m)(1). One of the source categories subject to the 100 tpy threshold is a fossil fuel-fired steam electric plants of more than 250 million BTU/hr, but this refers to a combined cycle plant, not a simple cycle plant like the CPP. Because the maximum CO and NOx emissions during any year are below the 250 tons/yr threshold, the *CPP*

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 41
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

is **not** subject to PSD requirements other than the BACT requirements required by Rule 1701(b)(1).

**2. Proposed A/N 531829, 531831, 531832, 531833**

**Rule 1701(b)(1) & Rule 1703(a)(2)**—See BACT analysis presented above under the New Source Review Analysis discussion.

**Rule 1701(b)(2)**-- Because the maximum CO and NOx emissions during any year continue to be below the 250 tons/yr threshold, *the CPP continues to **not** be subject to PSD requirements other than the BACT requirements required by Rule 1701(b)(1).*

**REGULATION XX—Regional Clean Air Incentives Market (RECLAIM)**

RECLAIM requirements are not triggered because there will not be a change in NOx emissions.

**REGULATION XXX – Title V**

This facility is in the RECLAIM program. The proposed project is considered a “de minimis significant permit revision” for non-RECLAIM pollutants or hazardous air pollutants (HAPs), and no permit revision for RECLAIM pollutants to the RECLAIM/Title V permit for this facility. A/N 531827 is the de minimis significant permit revision application submitted.

- Non-RECLAIM Pollutants or HAPs**

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or HAPs from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

<b>Air Contaminant</b>	<b>Daily Maximum (lbs/day)</b>
HAP	30
VOC	30
NOx*	40
PM <sub>10</sub>	30
SOx*	60
CO	220

\* Not applicable if this is a RECLAIM pollutant

This revision does not result in an increase of the 30-day average for any of the non-RECLAIM or HAPs emissions.



<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 42
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

A “de minimis significant permit revision,” however, also includes any revision that exceeds the “minor permit revision” restrictions listed in Rule 3000(b)(15). Thus a “de minimis significant permit revision,” includes a revision that requires relaxation of any condition in the permit (see Rule 3000(b)(15)(iv)). The increase in hourly CO start-up emissions would result in a condition relaxation.

- RECLAIM Pollutants  
This revision does not change NOx emissions.

**Permit Revisions, Emissions Changes and Cumulative Emissions**

This proposed project is the first permit revision (Rev. 1) to the initial Title V permit issued to this facility on March 23, 2010 as Rev. 0.

The following table summarizes the permit revisions since the initial Title V permit was issued, the associated emissions changes, and the total cumulative emissions.

Facility Permit Rev No	Revision	Change in Emissions					
		HAP, lb/day	CO, lb/day	NO <sub>x</sub> , lb/day	PM <sub>10</sub> , lb/day	ROG, lb/day	SO <sub>x</sub> , lb/day
0	Initial Title V Permit, issued 3/23/10						
1	Section B Revision, 1/1/12						
2	<b>Proposed First Title V Permit Revision:</b>  A/N 531827—Increase CO start-up emissions from 6.3 lb/hr to 11.6 lb/hr for Turbines 1, 2, 3, 4 (A/N 531829, 5318831, 531832, 531833)	0	0	0	0	0	0
	<b>Cumulative Total</b>	0	0	0	0	0	0
	<b>Maximum Daily</b>	30	220	40	30	30	60

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  ENGINEERING AND COMPLIANCE DIVISION  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 43
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

- **Federal Regulations**

**40 CFR Part 60 Subpart GG--NSPS for Stationary Gas Turbines**

Subpart GG is applicable to turbines with a heat input greater than 10 MMBtu/hr (10.7 gigajoules per hour). As the CTGs are subject to the requirements of 40 CFR Subpart KKKK (see below), they are exempt from the requirements of this subpart per §60.4305(b).

**40 CFR Part 60 Subpart KKKK-- NSPS for Stationary Gas Turbines**

Subpart KKKK establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines with a heat input greater than 10 MMBtu/hr (10.7 gigajoules per hour), based on higher heating value, which commenced construction, modification or reconstruction after February 18, 2005. As the heat input for each CTG will be 479 MMBtu/hr, this subpart is applicable to the CTGs. Compliance continues to be required by condition H23.1.

As the emission standards established are for NO<sub>x</sub> and SO<sub>x</sub>, the proposed increase in CO startup emissions will not be affected by this subpart.

**40 CFR Part 63 Subpart YYYY--NESHAPS for Stationary Gas Turbines**

This regulation applies to gas turbines located at major sources of HAP emissions. As established in the FDOC, the CPP is not a major source of HAPs. Since there will not be an increase in HAPs emissions from this revision, the requirements of this regulation continue to **not** apply.

**40 CFR Part 64 – Compliance Assurance Monitoring**

The Compliance Assurance Monitoring (CAM) rule, 40 CFR Part 64, specifies the monitoring, reporting, and recordkeeping criteria that is required to be conducted by Title V facilities to demonstrate ongoing compliance with emission limitations and standards.

In general, CAM applies to emissions units that meet all of the following conditions:

- the unit is located at a major source for which a Title V permit is required; and
- the unit is subject to an emission limitation or standard; and
- the unit uses a control device to achieve compliance with a federally enforceable limit or standard; and
- the unit has potential pre-control emissions (Title V renewal) or post-control emissions (initial Title V or revision) of at least 100% of the major source amount; and

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING AND COMPLIANCE DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 44	PAGE 44
	APPL. NO. 531827, 531829, 531831, 531832, 531833	DATE 2/17/2012
	PROCESSED BY V. Lee	CHECKED BY

- the unit is not otherwise exempt from CAM.

The CTGs are located at a major source for which a Title V permit is required. The NO<sub>x</sub> and CO emissions are subject to BACT limits and other emissions standards. Each CTG is controlled with SCR and CO catalyst to meet BACT limits.

For the initial Title V permit (FDOC), the post-control NO<sub>x</sub> and CO emissions from each CTG were less than the major source thresholds. Specifically, the NO<sub>x</sub> emissions (commissioning year) was 4.87 tpy, which is less than the 10 tpy threshold. The CO emissions was 4.19 tpy (commissioning year), which is less than the 50 tpy threshold. Thus, the CAM regulations were not applicable.

For this revision, since the post-control NO<sub>x</sub> and CO emissions from each CTG will not increase, the CAM regulations continue to be inapplicable.

### **RECOMMENDATION**

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision,” it is exempt from the public participation requirements under Rule 3006(b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
<b>System 1: GAS TURBINE</b>					

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GAS TURBINE, NO. 1, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N:	D1	C3	NOX: MAJOR SOURCE**	CO: 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; NOX: 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; NOX: 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; NOX: 25 PPMV NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; NOX: 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM10: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM10: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; PM10: 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; SO2: (9) [40CFR 72 - Acid Rain Provisions, 11-24-1997]; SOX: 0.06 LBS/MMBTU NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)]	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GENERATOR, 50.95 MW				-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 1, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476654 Permit to Construct Issued: 03/23/10	C3	D1 C4			
SELECTIVE CATALYTIC REDUCTION, NO. 1, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476654 Permit to Construct Issued: 03/23/10	C4	C3 S6		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1) -BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
AMMONIA INJECTION					
STACK, TURBINE NO. 1, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N:	S6	C4			

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GAS TURBINE, NO. 2, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N:	D7	C9	NOX: MAJOR SOURCE**	CO: 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; NOX: 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; NOX: 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; NOX: 25 PPMV NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; NOX: 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM10: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM10: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; PM10: 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; SO2: (9) [40CFR 72 - Acid Rain Provisions, 11-24-1997]; SOX: 0.06 LBS/MMBTU NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)]	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

- \* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate  
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit  
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit  
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GENERATOR, 50.95 MW				-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 2, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476657 Permit to Construct Issued: 03/23/10	C9	D7 C10			
SELECTIVE CATALYTIC REDUCTION, NO. 2, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476657 Permit to Construct Issued: 03/23/10	C10	C9 S12		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1) -BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
AMMONIA INJECTION					
STACK, TURBINE NO. 2, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N:	S12	C10			

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.



## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GAS TURBINE, NO. 3, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N:	D13	C15	NOX: MAJOR SOURCE**	CO: 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; NOX: 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; NOX: 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; NOX: 25 PPMV NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; NOX: 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM10: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM10: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; PM10: 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; SO2: (9) [40CFR 72 - Acid Rain Provisions, 11-24-1997]; SOX: 0.06 LBS/MMBTU NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)]	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

- \* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate  
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit  
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit  
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GENERATOR, 50.95 MW				-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 3, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476660 Permit to Construct Issued: 03/23/10	C15	D13 C16			
SELECTIVE CATALYTIC REDUCTION, NO. 3, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476660 Permit to Construct Issued: 03/23/10	C16	C15 S18		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1) -BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
AMMONIA INJECTION					
STACK, TURBINE NO. 3, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N:	S18	C16			

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GAS TURBINE, NO. 4, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000PC SPRINT, SIMPLE CYCLE, 479 MMBTU/HR AT 46 DEG F, WITH INLET CHILLING, WITH WATER INJECTION WITH A/N:	D19	C21	NOX: MAJOR SOURCE**	CO: 4 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; NOX: 2.5 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; NOX: 11.53 LBS/MMSCF NATURAL GAS (1A) [RULE 2012, 5-6-2005]; NOX: 25 PPMV NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; NOX: 98.16 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM10: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM10: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]; PM10: 11 LBS/HR NATURAL GAS (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; SO2: (9) [40CFR 72 - Acid Rain Provisions, 11-24-1997]; SOX: 0.06 LBS/MMBTU NATURAL GAS (8) [40CFR 60 Subpart KKKK, 7-6-2006]; VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)]	A63.1, A99.1, A99.2, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, B61.1, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, H23.1, I296.1, K40.1, K67.1

- \* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate  
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit  
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit  
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
GENERATOR, 50.95 MW				-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 4, BASF, 110 CUBIC FEET OF TOTAL CATALYST VOLUME A/N: 476663 Permit to Construct Issued: 03/23/10	C21	D19 C22			
SELECTIVE CATALYTIC REDUCTION, NO. 4, CORMETECH CMHT-21, 1012 CU.FT.; WIDTH: 2 FT 6 IN; HEIGHT: 25 FT 9 IN; LENGTH: 18 FT WITH A/N: 476663 Permit to Construct Issued: 03/23/10	C22	C21 S24		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1) -BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	A195.4, D12.2, D12.3, D12.4, E179.1, E179.2, E193.1
AMMONIA INJECTION					
STACK, TURBINE NO. 4, HEIGHT: 86 FT ; DIAMETER: 11 FT 8 IN A/N:	S24	C22			
<b>System 2: INTERNAL COMBUSTION ENGINE</b>					

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

# FACILITY PERMIT TO OPERATE CANYON POWER PLANT

## SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

[illegible]

- |   |   |
|---|---|
| <p>* (1) (1A) (1B) Denotes RECLAIM emission factor</p> <p>(3) Denotes RECLAIM concentration limit</p> <p>(5) (5A) (5B) Denotes command and control emission limit</p> <p>(7) Denotes NSR applicability limit</p> <p>(9) See App B for Emission Limits</p> | <p>(2) (2A) (2B) Denotes RECLAIM emission rate</p> <p>(4) Denotes BACT emission limit</p> <p>(6) Denotes air toxic control rule limit</p> <p>(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)</p> <p>(10) See section J for NESHAP/MACT requirements</p> |
| <p>** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.</p>  |   |

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 1: POWER GENERATION</b>					
STORAGE TANK, PRESSURE VESSEL, 19 PERCENT AQUEOUS AMMONIA, 10000 GALS; DIAMETER: 7 FT ; LENGTH: 42 FT A/N: 476665 Permit to Construct Issued: 03/23/10	D28				C157.1, E144.1, E193.1, K67.4
<b>Process 2: OIL WATER SEPARATION</b>					
OIL WATER SEPARATOR, UNDERGROUND, EMULSIFIED OIL AND WATER, 550 GALS; DIAMETER: 3 FT 6 IN; LENGTH: 7 FT 9 IN A/N: 481185 Permit to Construct Issued: 03/23/10	D29				E193.1

- \* (1) (1A) (1B) Denotes RECLAIM emission factor  
(3) Denotes RECLAIM concentration limit  
(5) (5A) (5B) Denotes command and control emission limit  
(7) Denotes NSR applicability limit  
(9) See App B for Emission Limits
- (2) (2A) (2B) Denotes RECLAIM emission rate  
(4) Denotes BACT emission limit  
(6) Denotes air toxic control rule limit  
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)  
(10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

# **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

## **SECTION H: DEVICE ID INDEX**

**The following sub-section provides an index  
to the devices that make up the facility  
description sorted by device ID.**

# **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

## **SECTION H: DEVICE ID INDEX**

<b>Device Index For Section H</b>			
<b>Device ID</b>	<b>Section H Page No.</b>	<b>Process</b>	<b>System</b>
D1	3	1	1
C3	3	1	1
C4	3	1	1
S6	3	1	1
D7	5	1	1
C9	5	1	1
C10	5	1	1
S12	5	1	1
D13	7	1	1
C15	7	1	1
C16	7	1	1
S18	7	1	1
D19	9	1	1
C21	9	1	1
C22	9	1	1
S24	9	1	1
D25	10	1	2
D28	11	1	3
D29	11	2	0



## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

#### **FACILITY CONDITIONS**

F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 11-9-2001]

F14.1 The operator shall not use diesel fuel containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

Material safety data sheets for the diesel fuel shall be kept current and made available to District personnel upon request.

[RULE 431.2, 5-4-1990; RULE 431.2, 9-15-2000]

#### **DEVICE CONDITIONS**

##### **A. Emission Limits**

A63.1 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
VOC	Less than or equal to 129 LBS IN ANY CALENDAR MONTH
PM10	Less than or equal to 299 LBS IN ANY CALENDAR MONTH
SOX	Less than or equal to 34 LBS IN ANY CALENDAR MONTH

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

For the purposes of this condition, the above emission limits shall be based on the emissions from a single turbine.

The turbine shall not commence with normal operation until the commissioning process has been completed. Normal operation commences when the turbine is able to supply electrical energy to the power grid as required under contract with the relevant entities. The District shall be notified in writing once the commissioning process for each turbine is completed.

Normal operation may commence in the same calendar month as the completion of the commissioning process provided the turbine is in compliance with the above emission limits.

The operator shall calculate the monthly emissions for VOC, PM10, and SOx using the equation below.

Monthly Emissions, lb/month = (Monthly fuel usage in mmscf/month) \*  
(Emission factors listed below)

For commissioning, the emission factors shall be as follows: VOC, 3.76 lb/mmcf; PM10, 6.03 lb/mmcf; and SOx, 0.68 lb/mmcf.

For normal operation, the emission factors shall be as follows: VOC, 2.59 lb/mmcf; PM10, 6.03 lb/mmcf; and SOx, 0.68 lb/mmcf.

For a month during which both commissioning and normal operation take place, the monthly emissions shall be the total of the commissioning emissions and the normal operation emissions.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

**[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]**

[Devices subject to this condition : D1, D7, D13, D19]

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

- A99.1 The 2.5 PPM NO<sub>x</sub> emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each start-up shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. The turbines shall be limited to a maximum of 240 start-ups per year.

NO<sub>x</sub> emissions for an hour that includes a start-up shall not exceed 14.27 lbs, and for an hour that includes a shutdown 4.07 lbs. For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : D1, D7, D13, D19]

- A99.2 The 4.0 PPM CO emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each start-up shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. The turbine shall be limited to a maximum of 240 start-ups per year.

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

CO emissions for an hour that includes a start-up shall not exceed 11.6 lbs, and for an hour that includes a shutdown 4.15 lbs. For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D1, D7, D13, D19]

- A99.3 The 2.0 PPM ROG emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. Commissioning shall not exceed 156 hours total. Each start-up shall not exceed 35 minutes. Each shutdown shall not exceed 10 minutes. The turbine shall be limited to a maximum of 240 start-ups per year.

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

ROG emissions for an hour that includes a start-up shall not exceed 1.29 lbs, and for an hour that includes a shutdown 1.27 lbs. For the purpose of defining an hour that includes a start-up, the period begins when natural gas is first introduced into the turbine and ends after 60 minutes. The worst case includes a full start-up sequence of 35 minutes, followed immediately by a turbine trip, a five minute purge period during which no fuel is burned, and the first 20 minutes of a restart sequence.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District personnel upon request.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : D1, D7, D13, D19]

- A99.4 The 98.16 LBS/MMCF NOX emission limit(s) shall only apply during turbine commissioning during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

**[RULE 2012, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

- A99.5 The 11.53 LBS/MMCF NOX emission limit(s) shall only apply after turbine commissioning during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

**[RULE 2012, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

- A195.1 The 2.5 PPMV NOX emission limit(s) is averaged over 60 minutes at 15 percent O<sub>2</sub>, dry.

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : D1, D7, D13, D19]

A195.2 The 4.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O<sub>2</sub>, dry.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D1, D7, D13, D19]

A195.3 The 2.0 PPMV ROG emission limit(s) is averaged over 60 minutes at 15 percent O<sub>2</sub>, dry.

[**RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : D1, D7, D13, D19]

A195.4 The 5 PPMV NH<sub>3</sub> emission limit(s) is averaged over 60 minutes at 15% O<sub>2</sub>, dry basis. The operator shall calculate and continuously record the NH<sub>3</sub> slip concentration using the following equation.

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

$NH_3$  (ppmv) =  $[a-b*c/1E+06]*1E+06/b$ ; where

a =  $NH_3$  injection rate (lbs/hr)/17(lb/lb-mol)

b = dry exhaust gas flow rate (scf/hr)/385.3 scf/lb-mol

c = change in measured  $NO_x$  across the SCR (ppmvd at 15%  $O_2$ )

The operator shall install and maintain a  $NO_x$  analyzer to measure the SCR inlet  $NO_x$  ppmv accurate to plus or minus 5 percent calibrated at least once every twelve months.

The  $NO_x$  analyzer shall be installed and operated within 90 days of initial start-up.

The operator shall use the above described method or another alternative method approved by the Executive Officer.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information without corroborative data using an approved reference method for the determination of ammonia.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : C4, C10, C16, C22]

A327.1 For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.

**[RULE 475, 10-8-1976; RULE 475, 8-7-1978]**

[Devices subject to this condition : D1, D7, D13, D19]

#### **B. Material/Fuel Type Limits**

B61.1 The operator shall not use natural gas containing the following specified compounds:

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

Compound	Range	grain per 100 scf
H2S	greater than	0.25

This concentration limit is an annual average based on monthly samples of natural gas composition or gas supplier documentation. Gaseous fuel samples shall be tested using District Method 307-91 for total sulfur calculated as H2S.

**[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]**

[Devices subject to this condition : D1, D7, D13, D19]

#### **C. Throughput or Operating Parameter Limits**

C1.1 The operator shall limit the operating time to no more than 200 hour(s) in any one year.

The 200 hours in any one year shall include no more than 50 hours for maintenance and performance testing.

The duration of each test shall not exceed 38 minutes in any one hour.

**[RULE 1110.2, 2-1-2008; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 3-7-2008; RULE 1470, 6-1-2007; RULE 2012, 5-6-2005; CA PRC CEQA, 11-23-1970]**

[Devices subject to this condition : D25]

C157.1 The operator shall install and maintain a pressure relief valve set at 25 psig.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : D28]

#### **D. Monitoring/Testing Requirements**



## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

- D12.1 The operator shall install and maintain a(n) flow meter to accurately indicate the fuel usage being supplied to the turbine.

The operator shall also install and maintain a device to continuously record the parameter being measured.

**[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 2012, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

- D12.2 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia.

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The calibration records shall be kept on site and made available to District personnel upon request.

The ammonia injection system shall be placed in full operation as soon as the minimum temperature at the outlet to the SCR reactor is reached. The minimum temperature is 540 deg F.

The ammonia injection rate shall remain between 6.83 gal/hr and 16 gal/hr.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : C4, C10, C16, C22]

- D12.3 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the exhaust at the inlet to the SCR reactor.

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

#### **The operator shall comply with the terms and conditions set forth below:**

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The catalyst temperature range shall remain between 665 deg F and 870 deg F.

The catalyst inlet temperature shall not exceed 870 deg F.

The temperature range requirement of this condition shall not apply during start-up conditions of the turbine not to exceed 35 minutes per start-up. For this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C4, C10, C16, C22]

- D12.4 The operator shall install and maintain a(n) pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches of water column.

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The pressure drop across the catalyst shall not exceed 6 inches water column.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C4, C10, C16, C22]

- D12.5 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

[RULE 1110.2, 2-1-2008; **RULE 1303(b)(2)-Offset, 5-10-1996**; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 3-7-2008; RULE 1470, 6-1-2007; **RULE 2012, 5-6-2005**]

[Devices subject to this condition : D25]

D29.1 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NOX emissions	District method 100.1	1 hour	Outlet of the SCR serving this equipment
CO emissions	District method 100.1	1 hour	Outlet of the SCR serving this equipment
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	District Method 5	4 hours	Outlet of the SCR serving this equipment
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

#### **The operator shall comply with the terms and conditions set forth below:**

The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in MW.

The test shall be conducted when this equipment is operating at loads of 100, 75, and 50 percent, with the exception of PM10 testing. For PM10, the test shall be conducted when this equipment is operating at a load of 100 percent.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows: a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters are done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA Method TO-12 (with preconcentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F.

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines.

Because the VOC BACT level was set using data derived from various source test results, this alternate VOC compliance method proves a fair comparison and

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

represents the best sampling and analysis technique for this purpose at this time.  
The test results shall be reported with two significant digits.

For the purpose of this condition, alternative test method may be allowed for each  
of the above pollutants upon concurrence of AQMD, EPA and CARB.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE  
1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2) -  
PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

D29.2 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

If the turbine is not in operation during one quarter, then no testing is required during that quarter.

The NO<sub>x</sub> concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NO<sub>x</sub> emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted and the results submitted to the District within 60 days after the test date.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : D1, D7, D13, D19]

D29.3 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	District Method 5	4 hours	Outlet of the SCR serving this equipment

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

#### **The operator shall comply with the terms and conditions set forth below:**

The test shall be conducted at least once every three years. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in MW.

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted when this equipment is operating at loads of 100, 75, and 50 percent, with the exception of PM10 testing. For PM10, the test shall be conducted when this equipment is operating at a load of 100 percent.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows: a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters are done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA Method TO-12 (with preconcentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F.

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines.

Because the VOC BACT level was set using data derived from various source test results, this alternate VOC compliance method provides a fair comparison and represents the best sampling and analysis technique for this purposes at this time.

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

The test results shall be reported with two significant digits.

For the purposes of this condition, alternative test method may be allowed for each of the above pollutants upon concurrence of AQMD, EPA, and CARB.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988]**

[Devices subject to this condition : D1, D7, D13, D19]

D82.1 The operator shall install and maintain a CEMS to measure the following parameters:

CO concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial startup of the turbine, in accordance with an approved AQMD Rule 218 CEMS plan application. The operator shall not install the CEMS prior to receiving initial approval from AQMD. Within two weeks of the turbine start-up, the operator shall provide written notification to the District of the exact date of start-up.

The CEMS shall be installed and operated to measure CO concentrations over a 15 minute averaging time period.

**[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 218, 8-7-1981; RULE 218, 5-14-1999]**

[Devices subject to this condition : D1, D7, D13, D19]

D82.2 The operator shall install and maintain a CEMS to measure the following parameters:



## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

NOX concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial start-up and the provisional certification date of the CEMS, the operator shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3). Within two weeks of the turbine start-up date, the operator shall provide written notification to the District of the exact date of start-up.

The CEMS shall be installed and operating (for BACT purposes only) no later than 90 days after initial start-up of the turbine.

**[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005; RULE 2012, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

#### **E. Equipment Operation/Construction Requirements**

- E144.1 The operator shall vent this equipment, during filling, only to the vessel from which it is being filled.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : D28]

- E179.1 For the purpose of the following condition number(s), continuously record shall be defined as recording at least once every hour and shall be calculated upon the average of the continuous monitoring for that hour.

Condition Number D 12- 2

Condition Number D 12- 3

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C4, C10, C16, C22]

- E179.2 For the purpose of the following condition number(s), continuously record shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

Condition Number D 12- 4

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : C4, C10, C16, C22]

- E193.1 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all air quality mitigation measures stipulated in the final California Energy Commission decision for the 07-AFC-9 project.

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : D1, C4, D7, C10, D13, C16, D19, C22, D25, D28, D29]

- E193.2 The operator shall operate and maintain this equipment according to the following requirements:

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

The operation of this engine beyond the 50 hours per year allotted for maintenance and performance testing shall be allowed only in the event of a loss of grid power or up to 30 minutes prior to a rotating outage, provided that the utility distribution company has ordered rotating outages in the control area where the engine is located or has indicated that it expects to issue such an order at a certain time, and the engine is located in a utility service block that is subject to the rotating outage.

Engine operation shall be terminated immediately after the utility distribution company advises that a rotating outage is no longer imminent or in effect.

The engine shall be operated for the primary purpose of providing a back up source of power to start a turbine.

[RULE 1110.2, 2-1-2008; **RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(2)-Offset, 5-10-1996**; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1401, 3-7-2008; RULE 1470, 6-1-2007; **RULE 2012, 5-6-2005**]

[Devices subject to this condition : D25]

E193.3 The operator shall operate and maintain this equipment according to the following specifications:

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

#### **The operator shall comply with the terms and conditions set forth below:**

The operator shall operate the diesel particulate filter system only with an operational HiBACK data logging and alarm system with backpressure and temperature monitors.

The HiBACK data logging and alarm system shall be programmed to provide a red warning signal and an audible alarm, whenever the engine backpressure reaches the maximum allowable backpressure of 40 inches of water. The engine backpressure shall not exceed 40 inches of water in operation.

The engine shall be operated at the load level required to achieve an engine exhaust gas temperature of 572 deg F (300 deg C) for passive regeneration of the diesel particulate filter for at least 30% of the operating time.

The engine shall not be operated below the passive regeneration temperature of 572 deg F for more than 240 consecutive minutes.

The operator shall regenerate the diesel particulate filter after every 12 cold starts or whenever a yellow warning signal indicating the backpressure is 10% below the allowable backpressure of 40 inches of water is received from the HiBACK alarm system, whichever occurs first. Filter regeneration is complete when the backpressure monitoring system indicates a normal backpressure reading.

The engine shall be shut down and the diesel particulate filter shall be cleaned whenever the backpressure reaches the maximum backpressure limit of 40 inches water. Cleaning shall be performed according to the manufacturer's recommendations in the installation and maintenance manual.

After every 200 hours of normal engine operation, the operator shall inspect the integrity of the diesel particulate filter and, if necessary, replace it.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : D25]

#### **H. Applicable Rules**

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
NOX	40CFR60, SUBPART	KKKK
SOX	40CFR60, SUBPART	KKKK

**[40CFR 60 Subpart KKKK, 7-6-2006]**

[Devices subject to this condition : D1, D7, D13, D19]

#### **I. Administrative**

I296.1 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the annual emissions increase for the first 12 months of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

To comply with this condition, the operator shall prior to the 1st compliance year hold a minimum NOx RTCs of 9677 lbs/yr. This condition shall apply during the 1st 12 months of operation, commencing with the initial operation of the gas turbine.

To comply with this condition, the operator shall, prior to the beginning of all years subsequent to the 1st compliance year, hold a minimum of 6886 lbs/yr of NOx RTCs for the operation of the gas turbine.

In accordance with Rule 2005(f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1st compliance year.

The condition shall apply to each turbine individually.

**[RULE 2005, 5-6-2005]**

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

[Devices subject to this condition : D1, D7, D13, D19]

- I296.2 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the annual emissions increase for the first 12 months of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

To comply with this condition, the operator shall prior to the 1st compliance year hold a minimum NOx RTCs of 2412 lbs/yr. This condition shall apply during the 1st 12 months of operation, commencing with the initial operation of the black start engine.

To comply with this condition, the operator shall, prior to the beginning of all years subsequent to the 1st compliance year, hold a minimum of 2412 lbs/yr of NOx RTCs for operation of the black start engine.

In accordance with Rule 2005(f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1st compliance year.

**[RULE 2005, 5-6-2005]**

[Devices subject to this condition : D25]

#### **K. Record Keeping/Reporting**

- K40.1 The operator shall provide to the District a source test report in accordance with the following specifications:

## FACILITY PERMIT TO OPERATE CANYON POWER PLANT

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

#### The operator shall comply with the terms and conditions set forth below:

Source test results shall be submitted to the District no later than 60 days after the source test was conducted.

Emission data shall be expressed in terms of concentration (ppmv) corrected to 15 percent oxygen (dry basis), mass rate (lb/hr), and lb/MMCF. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains/DSCF.

All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).

All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.

Source test results shall also include the oxygen levels in the exhaust, fuel flow rate (CFH), the heating content of the fuel, the flue gas temperature, and the generator power output (MW) under which the test was conducted.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

- K67.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Natural gas fuel use during the commissioning period.

Natural gas fuel use after the commissioning period and prior to CEMS certification.

Natural gas fuel use after CEMS certification.

**[RULE 2005, 5-6-2005]**

[Devices subject to this condition : D1, D7, D13, D19]

## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

K67.2 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

An engine operating log shall be maintained which on a monthly basis shall list all engine operations in each of the following areas:

A. Emergency use hours of operation,

B. Maintenance and testing hours, and

C. Other operating hours, with a description of the reason for operation.

In addition, each time the engine is started manually, the log shall include the date of operation and the timer readings in hours at the beginning and end of operation. The log shall be kept for a minimum of five calendar years prior to the current year and made available to District personnel upon request. The total hours of operation for the previous calendar year shall be recorded some time during the first 15 days of January each year.

[RULE 1110.2, 2-1-2008]

[Devices subject to this condition : D25]

K67.3 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

The operator shall maintain records of diesel particulate filter inspections, replacements, and cleaning.

The operator shall maintain monthly records of the exhaust temperature, engine backpressure, and date and time for the duty cycle as downloaded from the HiBACK data logging and alarm system.

All records shall be maintained on file for a minimum of five years and made available to District personnel upon request.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002**]



## **FACILITY PERMIT TO OPERATE CANYON POWER PLANT**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

**The operator shall comply with the terms and conditions set forth below:**

[Devices subject to this condition : D25]

K67.4 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

The operator shall document an inspection each time the tank is filled to ensure the vapor recovery equipment is consistently and properly used.

**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]**

[Devices subject to this condition : D28]

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ATTACHMENT 2

# List of Property Owners within 1,000 of the Proposed Project

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	APN_D	OWNERNAME	M_HSENO	M_DIR	M_STREET	M_SFX	M_UNIT	M_CITY	M_STATE	M_ZIP
1	344-221-03,04,09	CITY OF ANAHEIM			PO BOX 3222			ANAHEIM	CA	92803
2	344-111-01	CITY OF PLACENTIA	401	E	CHAPMAN	AVE		PLACENTIA	CA	92870
3	344-111-03	DONALD H YODER	17291		IRVINE	BLVD	415	TUSTIN	CA	92780
4	344-111-06	LARRY A BRENNAN	1492		HUNDLEY	ST		ANAHEIM	CA	92806
5	344-111-07	LEE K CLARK	13532		SANDHURST	PL		SANTA ANA	CA	92705
6	344-111-08	ALVAREZ FAMILY PARTNERSHIP	360	S	GLASSELL			ORANGE	CA	92866
7	344-111-18	WILLIAM R RUDDOCK	1412	N	HUNDLEY	ST		ANAHEIM	CA	92806
8	344-111-19	RICHARD A HADERER	3449		ENTERPRISE	AVE		HAYWARD	CA	94545
9	344-111-20	CRW LEASING CO INC	864	N	RED ROBIN	ST		ORANGE	CA	92869
10	344-112-02	SAMUEL C EASTERDAY	5375		CRESCENT	DR		YORBA LINDA	CA	92887
11	344-112-03	FURN BENCHMARK	17875		SKY PARK	CIR	#A	IRVINE	CA	92614
12	344-112-04	RICHARD JAMES & R DARLENE ADKINS	1409	N	HUNDLEY	ST		ANAHEIM	CA	92806
13	344-112-05	BRIAN J GELINAS	1415	N	HUNDLEY			ANAHEIM	CA	92806
14	344-112-07	BANA LLC	600	W	HERMOSA	DR		FULLERTON	CA	92835
15	344-202-07	VICTOR AVIGDOR EINI	2971	E	LA JOLLA			ANAHEIM	CA	92806
16	344-202-08	R L R INVESTMENTS LLC			PO BOX 271			WILMINGTON	OH	45177
17	344-211-04	SONFARREL INC	3000	E	LA JOLLA	ST		ANAHEIM	CA	92806
18	344-211-05	DAN F WINKLER	1381	N	HUNDLEY	ST		ANAHEIM	CA	92806
19	344-211-06	BARRY E COLVIN	584		19TH	ST		HERMOSA BEACH	CA	90254
20	344-211-10	B & L PROPERTIES	190		SEA WIND	WAY		LOS OSOS	CA	93402
21	344-211-11	B & L PROPERTIES	190		SEA WIND	WAY		LOS OSOS	CA	93402
22	344-211-12	B & L 79 LLC	34145		PACIFIC COAST		405	DANA POINT	CA	92629
23	344-211-13	MOHRSCHLADT HOWARTH ASSOC INC	9424		CASSIA	RD		ADELANTO	CA	92301
24	344-211-14	B & L PROPERTIES	190		SEA WIND	WAY		LOS OSOS	CA	93402
25	344-211-15	WALLACE R VAN DEVENTER	8603		LAUREL	AVE		WHITTIER	CA	90605
26	344-211-16	STEVEN R YETZKE	17530		WORKING	WAY		YORBA LINDA	CA	92886
27	344-211-17	JOHN MONROE OWINGS	1930		BALEARIC	DR		COSTA MESA	CA	92626
28	344-211-18	CEENA CT PTNRS GEN PTNSHP	3071	E	CEENA	CT		ANAHEIM	CA	92806
29	344-211-19	CEENA COURT PARTNERS GENERAL PARTNERSHIP	3071	E	CEENA	CT		ANAHEIM	CA	92806
30	344-211-20	ASPEN REALTY LLC	2951	E	LA PALMA	AVE		ANAHEIM	CA	92806
31	344-211-21	ROBERT D CRANE			P O BOX 134			LOS ALAMITOS	CA	90720
32	344-211-22	ASPEN REALTY LLC	2951	E	LA PALMA	AVE		ANAHEIM	CA	92806
33	344-211-23	DIRECT COLOR INC	5858		WESTHEIMER	RD	200	HOUSTON	TX	77057
34	344-221-01	METROPOLITAN WATER DISTRICT OF SO CAL			P O BOX 54153			LOS ANGELES	CA	90054
35	344-221-05	STEPHEN H GROVE	343		PARSONS LANDING			LONG BEACH	CA	90803
36	344-221-06	BORIS PIRIH	1210	N	JEFFERSON UNIT J			ANAHEIM	CA	92807
37	344-221-07	DOROTHY CASSELLA	2124	E	VALLEY GLEN	LN		ORANGE	CA	92867
38	344-221-08	BANK, SECURITY PAC NATL	3903		BELLAIRE	BLVD		HOUSTON	TX	77025
39	344-221-10	CAC EXCHANGE I LLC	7910		CRESCENT EXECUTIVE			CHARLOTTE	NC	28217
40	344-221-11	BKM MIRALOMA ASSOC LLC	3185		PULLMAN	ST		COSTA MESA	CA	92626
41	344-231-02	BALTZELL D DEAN	2995	E	MIRALOMA	AVE		ANAHEIM	CA	92806
42	344-231-05	ERDSTIECK FAMILY LTD PARTNERSHIP	4501	E	LA PALMA		200	ANAHEIM	CA	92807
43	344-231-07	DWYER INSTRUMENTS INC			P O BOX 373			MICHIGAN CITY	IN	46361
44	344-231-08	GEORGE S MC CAN			P O BOX 2794			NEWPORT BEACH	CA	92659
45	344-231-12	LAMB LEASING LLC	1029		BAYSIDE COVE			NEWPORT BEACH	CA	92660
46	344-231-13	GYP SUM ENTERPRISES INC	1370	N	RED GUM	ST		ANAHEIM	CA	92806
47	344-231-14	ROBERT CARSON	23451		VIA ALONDRA			COTO DE CAZA	CA	92679
48	344-231-15	B & E ENTERPRISES INC	2723		VIA CASA LOMA			SAN CLEMENTE	CA	92672

49	344-231-16	GEORGE S MC CAN		P O BOX 2794		NEWPORT BEACH	CA	92659
50	344-231-17	GEORGE S MC CAN		P O BOX 2794		NEWPORT BEACH	CA	92659
51	344-231-18	CHARLES BOUDAKIAM	1365 N	MC CAN	ST	ANAHEIM	CA	92806
52	344-231-19	WILLIAM R BRIDGE	7282	PIUTE CREEK	DR	CORONA	CA	92881
53	344-231-20	ROBERT J SARNA	620 E	NEIL CHILES	RD	BUCKNER	MO	64016
54	344-231-21	LOIS E VICK	4831	ORLANDO	DR	YORBA LINDA	CA	92886
55	344-231-22	LOIS VICK	1320 N	RED GUM		ANAHEIM	CA	92806
56	344-231-23	MIRALOMA BUSINESS CENTER LLC		P O BOX 10077		SANTA ANA	CA	92711
57	344-231-24	DONALD P DORMEYER	342 W	WESTWAY	AVE	ORANGE	CA	92865
58	344-241-02	THOMAS C & KATHLEEN A JOHNSON	160 E	LA JOLLA	ST	PLACENTIA	CA	92870
59	344-241-03	PETER KARAGINES	166 E	LA JOLLA	ST	PLACENTIA	CA	92870
60	344-241-04	ADCOAT PROPERTIES	172 E	LA JOLLA	ST	PLACENTIA	CA	92870
61	344-241-05	MORROW ENTERPRISE LLC	34328	WILSON CREEK	ST	TEMECULA	CA	92592
62	344-241-07	DARRYL C BASSANI	2900 E	LA JOLLA	ST	ANAHEIM	CA	92806
63	344-241-09	DARRYL C BASSANI	2900 E	LA JOLLA	ST	ANAHEIM	CA	92806
64	344-241-11	NANCO LLC	2950 E	LA JOLLA	ST	ANAHEIM	CA	92806
65	344-241-13	GOLDAAB PROPERTIES LLC	12202	RED HILL	AVE	SANTA ANA	CA	92705
66	344-241-14	PAMELA C BLEDSOE	202 W	LINCOLN	AVE	ORANGE	CA	92865
67	344-241-15	B & D PARTNERS	1361 N	RED GUM	ST	ANAHEIM	CA	92806
68	344-241-16	TOTEA ASSOCIATES	1000	SEGOVIA CIRCLE		PLACENTIA	CA	92870
69	344-241-17	TOTEA ASSOCIATES	1000	SEGOVIA CIRCLE		PLACENTIA	CA	92870
70	344-241-18	TOTEA ASSOCIATES	1000	SEGOVIA CIRCLE		PLACENTIA	CA	92870
71	344-241-19	TOTEA ASSOCIATES	1000	SEGOVIA CIRCLE		PLACENTIA	CA	92870
72	344-241-20	TOTEA ASSOCIATES	1000	SEGOVIA CIRCLE		PLACENTIA	CA	92870
73	344-241-21	TOTEA ASSOCIATES	1000	SEGOVIA CIRCLE		PLACENTIA	CA	92870
74	344-251-03	CANNON RED GUM PROP L P	2911 E	MIRALOMA	AVE	27 ANAHEIM	CA	92806
75	344-322-09	DALE K LENK	525	EL MODENA	AVE	NEWPORT BEACH	CA	92663
76	344-322-10	CORONADO INVESTORS	1340	REYNOLDS	AVE	116 IRVINE	CA	92614
77	344-322-11	DESIGNS ACRYLIC	1221 N	BARSTEN	WAY	ANAHEIM	CA	92806
78	344-322-12	BARSTEN PROPERTIES	1340	REYNOLDS	AVE	116 IRVINE	CA	92614
79	344-322-13	BARSTEN PROPERTIES	1340	REYNOLDS	AVE	116 IRVINE	CA	92614
80	344-322-14	WALID A BARAKAT	1240 N	BARSTEIN	WAY	ANAHEIM	CA	92806
81	344-322-15	JAMES D AMATO	5906 E	CAMINO MANZANO		ANAHEIM	CA	92807
82	344-322-16	C & J COMMERCIAL PROPERTIES LLC	38	SARATOGA		DOVE CANYON	CA	92679
83	344-322-17	CORONADO INVESTORS	1340	REYNOLDS	AVE	116 IRVINE	CA	92614
84	344-322-18	CORONADO INVESTORS	1340	REYNOLDS	AVE	116 IRVINE	CA	92614
85	344-322-19	FRANCIS M SEIFORD	900	LA PAZ		PLACENTIA	CA	92870
86	344-322-20	ROBERT N JACKSON	2002	CALLE DE LOS ALAMOS		SAN CLEMENTE	CA	92672
87	344-331-05	JOHDAN ENTERPRISES OF FULLERTON INC	2940	MIRALOMA	AVE	ANAHEIM	CA	92806
88	344-332-01	PAUL M REITLER	333 S	HOPE ST FL 48		LOS ANGELES	CA	90071
89	344-332-03	CHURCH, MISSION COMMUNITY	1250 N	RED GUM	ST	ANAHEIM	CA	92806
90	344-332-04	CHURCH, MISSION COMMUNITY	1250 N	RED GUM	ST	ANAHEIM	CA	92806
91	344-332-06	ROBERT W GORDON	2980 E	MIRALOMA	AVE	ANAHEIM	CA	92806
92	344-332-07	PROPERTIES LIMITED	2701	LIGHTHOUSE	LN	CORONA DEL MAR	CA	92625
93	344-332-08	MARK W DOOLEY	1371 N	MILLER	ST	ANAHEIM	CA	92806
94	344-332-09	MARK W DOOLEY	1371 N	MILLER	ST	ANAHEIM	CA	92806
95	344-332-10	ASPEN LA LOMA CIRCLE PROPERTIES	2951 E	LA PALMA	AVE	ANAHEIM	CA	92806
96	344-333-02	ML2990 LLC		P O BOX 10077		SANTA ANA	CA	92711
97	344-333-03	PROPERTIES LIMITED	2701	LIGHTHOUSE	LN	CORONA DEL MAR	CA	92625



98	344-333-04	ALEXANDER MORALES	1241 N	LA LOMA	CIR	A	ANAHEIM	CA	92806
99	344-341-02	HERTZ EQUIPMENT RENTAL CORP	225	BRAE	BLVD		PARK RIDGE	NJ	7656
100	344-341-03	JGW FRAMES LLC	3060 E	MIRALOMA	AVE		ANAHEIM	CA	92806
101	344-341-04	BRIEN DAVID PARISEAU	4861	SILVER SPUR	LN		YORBA LINDA	CA	92886
102	344-341-05	BUU QUOC PHAM	903 E	BAY HILL	PL		PLACENTIA	CA	92870
103	344-341-06	BONNIE YETIVE BULLINGER	682	BROOKLINE	PL		FULLERTON	CA	92835
104	344-341-09	TONY LEE SPRIGGS	2002	CALLE DE LOS ALAMOS			SAN CLEMENTE	CA	92672
105	344-341-10	TONY LEE SPRIGGS	2002	CALLE DE LOS ALAMOS			SAN CLEMENTE	CA	92672
106	344-341-11	NORMAN & IRMA M SWITZER		P O BOX 49414			LOS ANGELES	CA	90049
107	344-341-13	MIRALOMA REAL ESTATE INVESTMENT LLC	17101	SANTA CRUZ	CT		YORBA LINDA	CA	92886
108	344-341-15	JOYCE W ALMAS	8055 E	FLORENCE	AVE		DOWNEY	CA	90240
109	344-341-16	PROPERTIES LIMITED	2701	LIGHTHOUSE	LN		CORONA DEL MAR	CA	92625
110	344-342-02	CHRISTIAN S HANSEN	136 S	EUCALYPTUS	DR		ANAHEIM	CA	92808
111	344-342-03	PROPERTIES LIMITED	2701	LIGHTHOUSE	LN		CORONA DEL MAR	CA	92625
112	344-342-04	TERRY T PEIFFER	4402	PROSPECT	AVE		YORBA LINDA	CA	92886
113	344-351-12	LAWRENCE E HEAP	2110 W	ELM	AVE		ANAHEIM	CA	92804
114	344-351-13	ALI & KRISTY TAYEBI	22725	HIDDEN HILLS	RD		YORBA LINDA	CA	92887
115	344-351-14	THOMAS M & HIEDI COTTON	1295 N	LANCE	LN		ANAHEIM	CA	92806
116	344-351-15	HHI WEST HOLDINS LLC	1290 N	LANCE	LN	B	ANAHEIM	CA	92806
117	344-351-16	SWENSON FAMILY LIMITED PARTNERSHIP	34372	COVE LANTERN			DANA POINT	CA	92629
118	344-351-17	SWENSON FAMILY LIMITED PARTNERSHIP	34372	COVE LANTERN			DANA POINT	CA	92629
119	344-351-18	SWENSON FAMILY LIMITED PARTNERSHIP	34372	COVE LANTERN			DANA POINT	CA	92629
120	344-351-24	SWENSON FAMILY LIMITED PARTNERSHIP	34372	COVE LANTERN			DANA POINT	CA	92629
121	344-351-25	SWENSON FAMILY LIMITED PARTNERSHIP	34372	COVE LANTERN			DANA POINT	CA	92629
122	344-351-26	E M C ASSOCIATES LP	240	NEWPORT CENTER	DR	201	NEWPORT BEACH	CA	92660
123	344-351-27	E M C ASSOCIATES LP	240	NEWPORT CENTER	DR	201	NEWPORT BEACH	CA	92660
124	344-351-29	PIPE FABRICATING & SUPPLY CO		PO BOX 66004			ANAHEIM	CA	92816
125	344-351-30	CK LIMITED PARTNERSHIP	3071 E	CORONADO	ST		ANAHEIM	CA	92806
126	344-351-31	C K LIMITED PARTNERSHIP	3071 E	CORONADO	ST		ANAHEIM	CA	92806
127	345-031-01	CYTEC ENGINEERED MATERIALS INC	5	GARRET MOUNTAIN	PL		WEST PATERSON	NJ	7424
128	345-041-01	ORANGE COUNTY WATER DISTRICT		P O BOX 8300			FOUNTAIN VALLEY	CA	92728
129	345-041-02	ORANGE COUNTY WATER DISTRICT		P O BOX 8300			FOUNTAIN VLY	CA	92728
130	345-051-01	ANAHEIM EXTRUSION CO INC		P O BOX 6380			ANAHEIM	CA	92816
131	345-051-02	ANAHEIM EXTRUSION CO INC		P O BOX 6380			ANAHEIM	CA	92816
132	345-051-05	ORANGE COUNTY WATER DISTRICT		P O BOX 8300			FOUNTAIN VALLEY	CA	92728
133	345-051-06	ORANGE COUNTY WATER DISTRICT		P O BOX 8300			FOUNTAIN VLY	CA	92728
134	345-051-07	KRAEMER PARTNERS	10700	JERSEY	BLVD	610	RANCHO CUCAMONGA	CA	91730
135	345-051-08	KRAEMER PARTNERS	10700	JERSEY	BLVD	610	RANCHO CUCAMONGA	CA	91730
136	345-051-09	KRAEMER PARTNERS	10700	JERSEY	BLVD	610	RANCHO CUCAMONGA	CA	91730
137	345-101-23	KILROY REALTY LP		PO BOX 64733			LOS ANGELES	CA	90064
138	345-101-25	REALTY KILROY		PO BOX 64733			LOS ANGELES	CA	90064
139	345-101-26	STERLING PROPERTIES	3110 E	MIRALOMA	AVE		ANAHEIM	CA	92806
140	345-101-31	ROBERT D ZANTOS	10002	DEERHAVEN	DR		SANTA ANA	CA	92705