

**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

DOCKET

08-SPPE-1C

DATE FEB 20 2009

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SECTION A: FACILITY INFORMATION

LEGAL OWNER &/OR OPERATOR: CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

LEGAL OPERATOR (if different than owner):

EQUIPMENT LOCATION: 5901 PAYTON AVE
RIVERSIDE, CA 92504

MAILING ADDRESS: 5901 PAYTON AVE
RIVERSIDE, CA 92504

RESPONSIBLE OFFICIAL: DAVID WRIGHT

TITLE: PUBLIC UTILITIES GENERAL MANAGER

TELEPHONE NUMBER: (951) 826-5784

CONTACT PERSON: CHARLES R. CASEY

TITLE: UTILITY GENERATION MANAGER

TELEPHONE NUMBER: (951) 710-5010

TITLE V PERMIT ISSUED: April 29, 2005

TITLE V PERMIT EXPIRATION DATE: April 28, 2010

TITLE V	RECLAIM
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YES	NOx: YES
	SOx: NO
	CYCLE: 1
	ZONE: INLAND

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

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
Process 1 : INTERNAL COMBUSTION					
System 1 : GAS TURBINES, POWER GENERATION					
GAS TURBINE, NO. 1, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000 PC SPRINT, SIMPLE CYCLE, WITH WATER INJECTION, 490 MMBTU/HR WITH A/N: 426694 Permit to Construct Issued: 04/29/05	D1	C3	NOX: MAJOR SOURCE**	CO: 2000 PPMV (5) [RULE 407,4-2-1982] ; CO: 6 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002] NOX: 2.5 PPMV NATURAL GAS (4) [RULE 2005,4-20-2001] ; NOX: 106 PPMV NATURAL GAS (8) [40CFR 60 Subpart GG,7-8-2004] NOX: 17.18 LBS/MMSCF NATURAL GAS (1) [RULE 2012,12-5-2003] ; PM: 11 LBS/HR (5B) [RULE 475,10-8-1976;RULE 475,8-7-1978] PM: 0.01 GRAINS/SCF (5) [RULE 475,10-8-1976;RULE 475,8-7-1978] ; PM: 0.1 GRAINS/SCF (5A) [RULE 409,8-7-1981] SO2: (9) [40CFR 72 - Acid Rain Provisions,11-24-1997] ; SOX: 150 PPMV NATURAL GAS (8) [40CFR 60 Subpart GG,7-8-2004]	A63.1, A63.2, A99.1, A99.2, A99.3, A195.1, A195.2, A195.4, A327.1, C1.1, C1.2, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, 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.

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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
Process 1 : INTERNAL COMBUSTION					
GENERATOR, 49.8 MW				VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]	
SELECTIVE CATALYTIC REDUCTION, NO. 1, CORMETECH, 1227 CU.FT.; WIDTH: 8 FT 9.6 IN; HEIGHT: 6 FT 6 IN; LENGTH: 2 FT 7.2 IN WITH A/N: 426696 Permit to Construct Issued: 04/29/05 AMMONIA INJECTION, GRID	C2	C3 S4		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]	A195.3, D12.2, D12.3, D12.4, E179.1, E179.2
CO OXIDATION CATALYST, ENGLEHARD, INC. PLATINUM-ON-ALUMINA, 82 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N: 426696 Permit to Construct Issued: 04/29/05	C3	D1 C2			
STACK, NO. 1, HEIGHT: 80 FT; DIAMETER: 13 FT A/N: 426694 Permit to Construct Issued: 04/29/05	S4	C2			

- * (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

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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
Process 1 : INTERNAL COMBUSTION					
System 2 : GAS TURBINES, POWER GENERATION					
GAS TURBINE, NO.2, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000 PC SPRINT, SIMPLE CYCLE, WITH WATER INJECTION, 490 MMBTU/HR WITH A/N: 426695 Permit to Construct Issued: 04/29/05	D5	C7	NOX: MAJOR SOURCE**	<p>CO: 2000 PPMV (5) [RULE 407,4-2-1982] ; CO: 6 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]</p> <p>NOX: 2.5 PPMV NATURAL GAS (4) [RULE 2005,4-20-2001] ; NOX: 106 PPMV NATURAL GAS (8) [40CFR 60 Subpart GG,7-8-2004]</p> <p>NOX: 17.18 LBS/MMSCF NATURAL GAS (1) [RULE 2012,12-5-2003] ; PM: 11 LBS/HR (5B) [RULE 475,10-8-1976;RULE 475,8-7-1978]</p> <p>PM: 0.1 GRAINS/SCF (5) [RULE 409,8-7-1981] ; PM: 0.01 GRAINS/SCF (5A) [RULE 475,10-8-1976;RULE 475,8-7-1978]</p> <p>SO2: (9) [40CFR 72 - Acid Rain Provisions,11-24-1997] ; SOX: 150 PPMV NATURAL GAS (8) [40CFR 60 Subpart GG,7-8-2004]</p>	A63.1, A63.2, A99.1, A99.2, A99.3, A195.1, A195.2, A195.4, A327.1, C1.1, C1.2, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, I296.2, K40.1, K67.1

* (1)(1A)(1B) Denotes RECLAIM emission factor (2)(2A)(2B) Denotes RECLAIM emission rate
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 (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

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Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1 : INTERNAL COMBUSTION					
GENERATOR, 49.8 MW				VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]	
SELECTIVE CATALYTIC REDUCTION, NO. 2, CORMETECH, 1227 CU.FT.; WIDTH: 8 FT 9.6 IN; HEIGHT: 6 FT 6 IN; LENGTH: 2 FT 7.2 IN WITH A/N: 426697 Permit to Construct Issued: 04/29/05 AMMONIA INJECTION, GRID	C6	S8		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]	A195.3, D12.2, D12.3, D12.4, E179.1, E179.2
CO OXIDATION CATALYST, ENGLEHARD, INC, PLATINUM-ON-ALUMINA, 82 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N: 426697 Permit to Construct Issued: 04/29/05	C7	D5 S8			
STACK, NO. 2, HEIGHT: 80 FT; DIAMETER: 13 FT A/N: 426695 Permit to Construct Issued: 04/29/05	S8	C6 C7			

* (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
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** Refer to Section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

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Process 1 : INTERNAL COMBUSTION					
System 3 : GAS TURBINES, POWER GENERATION					
GAS TURBINE, NO. 3, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000-PC SPRINT, SIMPLE CYCLE, HEAT INPUT REFERENCED AT 100 DEGREES F, WITH WATER INJECTION, 490 MMBTU/HR A/N:	D16	C18	NOX: MAJOR SOURCE**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407,4-2-1982] ; CO: 4 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002] NOX: 12.5 LBS/MMSCF NATURAL GAS (2A) [RULE 2012,5-6-2005] ; NOX: 2.3 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002] NOX: 25 PPMV NATURAL GAS (8) [40CFR 60 Subpart KKKK,7-6-2006] ; NOX: 96.66 LBS/MMSCF NATURAL GAS (1) [RULE 2012,5-6-2005] PM: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475,10-8-1976;RULE 475,8-7-1978] ; PM: 0.1 GRAINS/SCF NATURAL GAS (5B) [RULE 407,4-2-1982]	A63.3, A63.4, A63.5, A99.4, A99.5, A99.6, A99.7, A195.4, A195.5, A195.6, A327.1, A433.1, A433.2, C1.3, C1.4, D12.1, D29.4, D29.5, D29.6, D82.3, D82.4, E193.2, H23.1, I296.3, 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
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Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1 : INTERNAL COMBUSTION					
				PM: 11 LBS/HR NATURAL GAS (5) [RULE 475,10-8-1976;RULE 475,8-7-1978] ; PM10: 6.42 LBS/MMSCF NATURAL GAS (7) [RULE 1303(b)(2)-Offset,5-10-1996 RULE 1303(b)(2)-Offset,12-6-2002] ; 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)-BACT,12-6-2002]	
GENERATOR, 49.8 MW A/N:	B17				
CO OXIDATION CATALYST, BASF CATALYST LLC, PLATINUM AND ALUMINA, MODEL CANMET, 90 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH 0 FT 3 IN A/N:	C18	D16 C19			
SELECTIVE CATALYTIC REDUCTION, NO. 3, CORMETECH, 1024 CU.FT.; WIDTH: 8 FT 11.6 IN; HEIGHT: 6 FT 5 IN; LENGTH: 3 FT 2 IN A/N:	C19	C18 S21		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]	A195.7, D12.4, D12.5, D12.6, E179.1, E179.2, E193.2

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Process 1 : INTERNAL COMBUSTION					
STACK, NO. 3, HEIGHT: 80 FT; DIAMETER: 13 FT A/N:	S21	C19			
System 4 : GAS TURBINES, POWER GENERATION					
GAS TURBINE, NO. 4, NATURAL GAS, GENERAL ELECTRIC, MODEL: LM6000 PC SPRINT, SIMPLE CYCLE, HEAT INPUT REFERENCED AT 100 DEGREES F, WITH WATER INJECTION, 490 MMBTU/HR A/N:	D22	C24	NOX: MAJOR SOURCE**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407,4-2-1982] ; CO: 4 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5- 10-1996;RULE 1303(a)(1)- BACT,12-6-2002] NOX: 12.5 LBS/MMSCF NATURAL GAS (1A) [RULE 2012,5-6-2005] ; NOX: 2.3 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10- 1996;RULE 1303(a)(1)-BACT,12-6- 2002] NOX: 25 PPMV NATURAL GAS (8) [40CFR 60 Subpart KKKK,7-6-2006] ; NOX: 96.66 LBS/MMSCF NATURAL GAS (1) [RULE 2012,5-6-2005] PM: 0.01 GRAINS/SCF NATURAL GAS (5A) [RULE 475,10-8-1976;RULE 475,8-7-1978] ; PM: 0.1 GRAINS/SCF NATURAL GAS (5B) [RULE 409,8-7-1981]	A63.3, A63.4, A63.5, A99.4, A99.5, A99.6, A99.7, A195.4, A195.5, A195.6, A327.1, A433.1, A433.2, C1.3, C1.4, D12.1, D29.4, D29.5, D29.6, D82.3, D82.4, E193.2, H23.1, I296.3, K40.1, K67.1

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				PM: 11 LBS/HR NATURAL GAS (5) [RULE 475,10-8-1976;RULE 475,8-7-1978] ; PM10: 6.42 LBS/MMSCF NATURAL GAS (7) [RULE 1303(b)(2)-Offset,5-10-1996 RULE 1303(b)(2)-Offset,12-6-2002] ; 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)-BACT,12-6-2002]	
GENERATOR, 49.8 MW A/N:	B23				
CO OXIDATION CATALYST, BASF CATALYST LLC, PLATINUM AND ALUMINUM, MODEL CANMET, 90 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N:	C24	D22 C25			
SELECTIVE CATALYTIC REDUCTION, NO. 4, CORMETECH, 1024 CU.FT.; WIDTH: 8 FT 11.6 IN; HEIGHT: 6 FT 5 IN; LENGTH: 3 FT 2 IN A/N:	C25	C24 S27		NH3: 5 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT,5-10-1996;RULE 1303(a)(1)-BACT,12-6-2002]	A195.7, D12.4, D12.5, D12.6, E179.1, E179.2, E193.2

* (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

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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
Process 1 : INTERNAL COMBUSTION					
STACK, NO. 4, HEIGHT: 80 FT; DIAMETER: 13 FT A/N:	S27	C25			
Process 2 : AMMONIA STORAGE					
STORAGE TANK, FIXED ROOF, AQUEOUS AMMONIA 19 PERCENT, WITH A VAPOR RETURN LINE, 12000 GALS A/N: 426698 Permit to Construct Issued: 04/29/05	D11				C157.1, E144.1, E193.1

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 (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
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**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

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
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	Section H Page No.	Process	System
D1	1	1	1
C2	2	1	1
C3	2	1	1
S4	2	1	1
D5	3	1	2
C6	4	1	2
C7	4	1	2
S8	4	1	2
D11	9	2	0
D16	5	1	3
B17	6	1	3
C18	6	1	3
C19	6	1	3
S21	7	1	3
D22	7	1	4
B23	8	1	4
C24	8	1	4
C25	8	1	4
S27	9	1	4

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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]

DEVICE CONDITIONS

A. Emission Limits

**FACILITY PERMIT TO OPERATE
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The operator shall comply with the terms and conditions set forth below:

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

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than or equal to 2330 LBS IN ANY ONE MONTH
CO	Less than or equal to 6574 LBS IN ANY ONE MONTH
SOX	Less than or equal to 212 LBS IN ANY ONE MONTH
VOC	Less than or equal to 887 LBS IN ANY ONE MONTH

The operator shall calculate the emission limit(s) based on the emissions from a single turbine. The operator shall calculate the monthly emission limit(s) by using monthly fuel use data, and the following emission factors. PM: 6.93 lb/MMSCF, SOx: 0.6 lb/mmscf, and VOC 2.601 lb/mmscf.

The operator shall calculate the emission limit(s) based on the emissions from a single turbine. Compliance with the CO emission limit shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using monthly fuel usage and the factor of 26.08 lb/mmscf during commissioning, and 6.71 lb/mmscf during normal operations. During commissioning, the CO emissions shall not exceed 9,942 lbs in any one month

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

[Devices subject to this condition : D1, D5]

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

A63.2 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than or equal to 7806 LBS IN ANY ONE YEAR
CO	Less than or equal to 21644 LBS IN ANY ONE YEAR
SOX	Less than or equal to 710 LBS IN ANY ONE YEAR
VOC	Less than or equal to 2973 LBS IN ANY ONE YEAR

For the purposes of this condition, the limit(s) shall be based on the total combined emissions from both turbines. The operator shall calculate the annual emissions by using annual fuel use data, and the following emission factors: PM10 6.93 lb/MMSCF; SOx 0.6 lb/mmcf; and VOC 2.601 lb/mmcf.

The operator shall calculate the emission limit(s). Compliance with the CO emission limit shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using annual fuel usage and the emission factor of 26.08 lb/mmcf during commissioning, and 6.71 lb/mmcf during normal operation. The CO emissions shall not exceed 36,702 lbs during a commissioning year.

For the purposes of this condition, the yearly emission limit shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.

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

[Devices subject to this condition : D1, D5]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

A63.3 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than 450 LBS IN ANY ONE MONTH
CO	Less than 1352 LBS IN ANY ONE MONTH
SOX	Less than 47 LBS IN ANY ONE MONTH
VOC	Less than 215 LBS IN ANY ONE MONTH

For the purposes of this condition, the limit(s) shall be based on the emissions from a single turbine.

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM10: 6.42 lbs/MMscf, and SOx: 0.67 lbs/MMscf.

Compliance with CO emissions limits shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the following factors - 9.41 lbs/MMscf during normal operations and 11.60 lbs/start-up and 10.92 lbs/shutdown.

VOC emissions shall be calculated using fuel usage and the following factors - 2.69 lbs/MMscf during normal operations and 1.49 lb/start-up and 1.41 lb/shutdown.

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

[Devices subject to this condition : D16, D22]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

A63.4 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than 7380 LBS IN ANY ONE YEAR
CO	Less than 15768 LBS IN ANY ONE YEAR
SOX	Less than 770 LBS IN ANY ONE YEAR
VOC	Less than 3244 LBS IN ANY ONE YEAR

For the purposes of this condition, limit(s) shall be based on the combined emissions from both turbines.

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM10: 6.42 lb/MMscf, and SOx: 0.67 lb/MMscf

Compliance with CO emissions limits shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the following factors - 9.41 lb/MMscf during normal operations and 11.60 lbs/start-up and 10.92 lbs/shutdown.

VOC emissions shall be calculated using fuel usage and the following factors - 2.69 lbs/MMscf during normal operations and 1.49 lb/start-up and 1.41 lb/shutdown.

The CO emissions shall not exceed 32,474 lbs during a commissioning year and the VOC emissions shall not exceed 3,998 lbs during a commissioning year. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the factor of 98.84 lbs/MMscf. VOC emissions shall be calculated using fuel usage and the factor of 6.72 lbs/MMscf for turbine operation prior to the installation of the CO oxidation catalyst.

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

For the purposes of this condition, the yearly emission limit shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.

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

[Devices subject to this condition : D16; D22]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

A63.5 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than 450 LBS IN ANY ONE MONTH
CO	Less than 6924 LBS IN ANY ONE MONTH
SOX	Less than 47 LBS IN ANY ONE MONTH
VOC	Less than 235 LBS IN ANY ONE MONTH

For the purposes of this condition, the limit(s) shall be based on the emissions from a single turbine during a commissioning month, which shall be defined as the month(s) in which the turbine is first installed and commences initial firing and operation to the time that the oxidation catalyst, SCR catalyst, ammonia injection system, and NOx analyzer have been installed and the turbine is ready to supply electrical energy to the power grid. The commissioning period shall not exceed 200 hours.

The turbines shall not operate concurrently until at least one of the two turbines has installed the oxidation catalyst, SCR catalyst, ammonia injection system, and NOx analyzer.

For the purposes of this condition, the maximum number of start-ups during the commissioning month shall not exceed 20 start-ups. The number of start-ups shall begin to be counted and recorded following the installation of the oxidation catalyst.

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM10: 6.42 lbs/MMscf, and SOx: 0.67 lbs/MMscf.

Compliance with CO emissions limits shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the following factors - 9.41 lbs/MMscf during normal operations and 11.60 lbs/start-up and 10.92 lbs/shutdown. For operation during commissioning, CO emissions shall be calculated using fuel usage and the factor of 98.84 lbs/MMscf.

VOC emissions shall be calculated using fuel usage and the following factors - 2.69 lbs/MMscf during normal operations and 1.49 lb/start-up and 1.41 lb/shutdown. For operation prior to the installation of the oxidation catalyst, VOC emissions shall be calculated using fuel usage and the factor of 6.72 lbs/MMscf.

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

The District shall be notified in writing once the commissioning process has been completed for each turbine. The notification to the District shall include data and relevant information that demonstrates compliance with this condition.

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

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 : D16, D22]

- A99.1 The 2.5 PPM NOX emission limit(s) shall not apply during turbine commissioning, start-up, shutdown, and maintenance periods. The commissioning period shall not exceed 200 hours per turbine. Start-up time shall not exceed 40 minutes for each start-up. Shutdown periods shall not exceed 10 minutes. Maintenance shall not exceed 10 hours per year. Written records of commissioning, start-up, shutdown, and maintenance shall be made available to the Executive Officer upon request.

For the purposes of this condition, maintenance shall be defined as optimizing and re-balancing of the NH3 grid or catalyst modules, and the retuning of the turbine emission control systems.

[RULE 2005, 4-20-2001]

[Devices subject to this condition : D1, D5]

- A99.2 The 6.0 PPM CO emission limit(s) shall not apply during turbine commissioning, start-up, shutdown, and maintenance periods. The commissioning period shall not exceed 200 hours per turbine. Start-up time shall not exceed 40 minutes for each start-up. Shutdown periods shall not exceed 10 minutes. Maintenance shall not exceed 10 hours per year. Written records of commissioning, start-up, shutdown, and maintenance shall be made available to the Executive Officer upon request.

For the purposes of this condition, maintenance shall be defined as optimizing and re-balancing of the NH3 grid or catalyst modules, and the retuning of the turbine emission control systems.

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

[Devices subject to this condition : D1, D5]

- A99.3 The 17.18 PPM NOX emission limit(s) shall only apply during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

[RULE 2012, 12-5-2003]

[Devices subject to this condition : D1, D5]

**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

A99.4 The 2.3 PPM NOX emission limit(s) shall not apply during turbine commissioning, start-up, shutdown, and maintenance periods. Start-up time shall not exceed 35 minutes for each start-up. Shutdown periods shall not exceed 10 minutes for each shutdown. The turbine shall be limited to a maximum of 20 start-ups per month and 150 start-ups per year. Maintenance shall not exceed 10 hours per year. Written records of commissioning, start-ups, shutdowns and maintenance shall be maintained and made available to the Executive Officer upon request.

For the purposes of this condition, start-up shall be defined as the start up process to bring the turbine and the SCR and ammonia injection system to full successful operation. If during start-up the process is aborted and the start-up is restarted, then the start-up and restart is defined as "one start-up". In this case the start-up time shall not exceed 35 minutes.

For the purposes of this condition, shutdown shall be defined as a reduction in turbine load ending in a period of zero fuel flow.

For the purposes of this condition, maintenance shall be defined as optimizing and re-balancing of the NH3 grid or catalyst modules, and the retuning of the turbine control systems.

The commissioning period shall not exceed 200 hours.

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

[Devices subject to this condition : D16, D22]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

- A99.5 The 4.0 PPM CO emission limit(s) shall not apply during turbine commissioning, start-up, shutdown, and maintenance periods. Start-up time shall not exceed 35 minutes for each start-up. Shutdown periods shall not exceed 10 minutes for each shutdown. The turbine shall be limited to a maximum of 20 start-ups per month and 150 start-ups per year. Maintenance shall not exceed 10 hours per year. Written records of commissioning, start-ups, shutdowns and maintenance shall be maintained and made available to the Executive Officer upon request.

For the purposes of this condition, start-up shall be defined as the start up process to bring the turbine and the SCR and ammonia injection system to full successful operation. If during start-up the process is aborted and the start-up is restarted, then the start-up and restart is defined as "one start-up". In this case the start-up time shall not exceed 35 minutes.

For the purposes of this condition, shutdown shall be defined as a reduction in turbine load ending in a period of zero fuel flow.

For the purposes of this condition, maintenance shall be defined as optimizing and re-balancing of the NH3 grid or catalyst modules, and the retuning of the turbine control systems.

The commissioning period shall not exceed 200 hours.

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

[Devices subject to this condition : D16, D22]

- A99.6 The 96.66 LBS/MMCF NOX emission limit(s) shall only apply during the interim reporting period during initial turbine commissioning 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 : D16, D22]

- A99.7 The 12.50 LBS/MMSCF NOX emission limit(s) shall only apply during the interim reporting period after initial turbine commissioning 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 : D16, D22]

**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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

[RULE 2005, 4-20-2001]

[Devices subject to this condition : D1, D5]

A195.2 The 6.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.

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

[Devices subject to this condition : D1, D5]

A195.3 The 5.0 PPMV NH3 emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.

The operator shall calculate and continuously record the NH3 slip concentration using the following: NH_3 (ppmv) = $[a-b*c/1\text{EE}+06]*1\text{EE}+06/b$, where: a=NH3 injection rate (lb/hr)/17(lb/lb-mol), b=dry exhaust gas flow rate (scf/hr)/385.5 scf/lbmol), c=change in measured NOx across the SCR (ppmv @ 15% O2).

The operator shall install and maintain a NOx analyzer to measure the SCR inlet NOx ppmv accurate to plus/minus 5 percent and calibrated at least once every 12 months.

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

The ammonia slip calculation procedures described above shall not be used for compliance determination for emission information determination 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 : C2, C6]

A195.4 The 2.0 PPMV VOC emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.

[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]

[Devices subject to this condition : D1, D5, D16, D22]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

A195.5 The 4.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O₂, dry.

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

[Devices subject to this condition : D16, D22]

A195.6 The 2.3 PPMV NO_x emission limit(s) is averaged over 60 minutes at 15 percent O₂, dry.

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

[Devices subject to this condition : D16, D22]

A195.7 The 5.0 PPMV NH₃ emission limit(s) is averaged over 60 minutes at 15% O₂, dry basis.

The operator shall calculate and continuously record the NH₃ slip concentration using the following: NH₃ (ppmv) = $[a-b*c/1EE+06]*1EE+06/b$, where: a = NH₃ 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 (ppmv at 15% O₂).

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 : C19, C25]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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, D5, D16, D22]

A433.1 The operator shall comply at all times with the 2.3 ppm 1-hour BACT limit for NOx, except as defined in condition A99.4 and for the following scenarios:

Operating Scenario	Maximum Limit	Operational Limit
Start-up	11.02 lb	The mass emission limit is determined over 60 consecutive rolling minutes
Shutdown	6.14 lb	The mass emission limit is determined over 60 consecutive rolling minutes

Records of minute by minute start-up and shutdown data shall be maintained and made available to the Executive Officer upon request.

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

[Devices subject to this condition : D16, D22]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

A433.2 The operator shall at all times with the 4.0 ppm 1-hour BACT limit for CO, except as defined in condition A99.5 and for the following scenarios:

Operating Scenario	Maximum Limit	Operational Limit
Start-up	11.60 lb	The mass emission limit is determined over 60 consecutive rolling minutes
Shutdown	10.92 lb	The mass emission limit is determined over 60 consecutive rolling minutes

Records of minute by minute start-up and shutdown data shall be maintained and made available to the Executive Officer upon request.

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

[Devices subject to this condition : D16, D22]

C. Throughput or Operating Parameter Limits

C1.1 The operator shall limit the fuel usage to no more than 339 MM cubic feet in any one calendar month.

For the purpose of this condition, fuel usage shall be defined as the total natural gas usage of a single turbine.

The operator shall maintain records to demonstrate compliance with this condition and the records shall be made available upon AQMD request.

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

[Devices subject to this condition : D1, D5]

**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

C1.2 The operator shall limit the fuel usage to no more than 1136 MM cubic feet per year.

For the purpose of this condition, fuel usage shall be defined as the total natural gas usage of turbines 1 and 2.

The operator shall maintain records to demonstrate compliance with this condition and the records shall be made available upon AQMD request.

For the purpose of this condition, the yearly fuel usage shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each consecutive month.

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

[Devices subject to this condition : D1, D5]

C1.3 The operator shall limit the fuel usage to no more than 70 MM cubic feet in any one calendar month.

For the purpose of this condition, fuel usage shall be defined as the total natural gas usage of a single turbine.

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

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

[Devices subject to this condition : D16, D22]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

C1.4 The operator shall limit the fuel usage to no more than 1148 MM cubic feet per year.

For the purpose of this condition, fuel usage shall be defined as the total combined natural gas usage of both turbines.

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

For the purpose of this condition, the yearly fuel usage shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each consecutive month.

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

[Devices subject to this condition : D16, D22]

C157.1 The operator shall install and maintain a pressure relief valve with a minimum pressure 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 : D11]

D. Monitoring/Testing Requirements

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, 12-5-2003]

[Devices subject to this condition : D1, D5, D16, D22]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

- 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.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 2005, 4-20-2001]

[Devices subject to this condition : C2, C6]

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

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.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 2005, 4-20-2001]

[Devices subject to this condition : C2, C6]

- 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.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 2005, 4-20-2001]

[Devices subject to this condition : C2, C6, C19, C25]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

D12.5 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the 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 ammonia injection system shall be placed in full operation as soon as the minimum temperature is reached. The minimum temperature is listed as 515 degrees F. at the inlet to the SCR reactor

[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 : C19, C25]

D12.6 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor.

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 515 degrees F and 870 degrees F. The inlet temperature shall not exceed 870 degrees F.

The temperature range requirement of this condition shall not apply during start-up of the turbine not to exceed 35 minutes and shutdown of the turbine not to exceed 10 minutes.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation and shutdown shall be defined as a reduction in turbine load ending in a period of zero fuel flow.

[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 : C19, C25]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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	Approved District method	District-approved averaging time	Fuel sample
VOC	Approved District method	1 hour	Outlet of the SCR serving this equipment
PM emissions	Approved District method	District-approved averaging time	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 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 laboratory, 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 for compliance verification of the BACT VOC 2.0 ppmv limit.

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 pre concentration) 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

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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 methods, 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.

The test shall be conducted when this equipment is operating at loads of 100, 75, and 50 percent of maximum load.

[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 2005, 4-20-2001]

[Devices subject to this condition : D1, D5]

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 shall be conducted and the results submitted to the District within 45 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. 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 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, D5]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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	Approved District method	District-approved averaging time	Fuel sample
VOC	Approved District method	1 hour	Outlet of the SCR serving this equipment
PM emissions	Approved District method	District-approved averaging time	Outlet of the SCR serving this equipment

The test(s) shall be conducted at least once every three years.

The test shall be conducted and the results submitted to the District within 60 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test shall be conducted in accordance with a District approved source test protocol. The protocol shall be submitted to the District permitting engineer no later than 45 days before the proposed test date and shall be approved by the District before the test commences. The protocol shall include the proposed operating conditions of the turbine during the tests, identity of the testing lab, a statement from the 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 demonstrate compliance with Rule 1303 concentration emission limits.

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 (MW).

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

For natural gas fired turbines only, VOC compliance shall be determined 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 pre-concentration) 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 methods, this alternate

**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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.

The test shall be conducted when this equipment is operating at 100 percent load.

[**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]**

[Devices subject to this condition : D1, D5]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

D29.4 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
PM emissions	District method 5.2	District-approved averaging time	Outlet of the SCR serving this equipment
PM10 emissions	EPA Method 201A	District-approved averaging time	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 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 100, 75, and 50 percent of maximum load.

The test shall be conducted to demonstrate compliance with the PM10 emission factor of 6.42 lb/MMscf. The PM10 shall be sampled by EPA Method 201A and the analysis shall be conducted by EPA method 202 or District method 5.2 or sampled and analyzed by a District Approved Method.

The test shall be conducted to demonstrate compliance with Rules 475 and 409 emission limits for PM. The test for PM shall be conducted by District Method 5.1 or 5.2 or by a District Approved Method.

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

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 for compliance verification of the BACT VOC 2.0 ppmv limit.

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 pre concentration) 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 : D16, D22]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

D29.5 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 shall be conducted and the results submitted to the District within 45 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test(s) shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. 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 to demonstrate compliance with the Rule 1303 BACT concentration limit.

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

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

[Devices subject to this condition : D16, D22]

**FACILITY PERMIT TO OPERATE
 CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

D29.6 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
PM emissions	District method 5.2	District-approved averaging time	Outlet of the SCR serving this equipment
PM10 emissions	EPA Method 201A	District-approved averaging time	Outlet of the SCR serving this equipment

The test(s) shall be conducted at least once every three years.

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 maximum load.

The test shall be conducted to demonstrate compliance with with the PM10 emission factor of 6.42 lb/MMscf. The PM10 shall be sampled by EPA Method 201A and the analysis shall be conducted by EPA method 202 or District method 5.2 or sampled and analyzed by a District Approved Method.

The test shall be conducted to demonstrate compliance with Rules 475 and 409 emission limits for PM. The test for PM shall be conducted by District Method 5.1 or 5.2 or by a District Approved Method.

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

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

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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]

[Devices subject to this condition : D16, D22]

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 will convert the actual CO concentrations to mass emission rates (lbs/hr) and record the hourly emission rates on a continuous basis.

The CEMS shall be installed and operated 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.

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

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine

[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]

[Devices subject to this condition : D1, D5]

**FACILITY PERMIT TO OPERATE
CITY OF RIVERSIDE PUBLIC UTILITIES DEPT**

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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

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 12 months 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 start-up 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 AQMD 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 2005, 4-20-2001; RULE 2012, 12-5-2003]

[Devices subject to this condition : D1, D5]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

D82.3 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 operated no later than 90 days after initial start-up of the turbine, and 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.

The CEMS will convert the actual CO concentrations to mass emission rates (lbs/hr) using the equation below and record the hourly emission rates on a continuous basis.

CO Emission Rate, lbs/hr = $K C_{co} F_d [20.9\% - \%O_2 d] [(Q_g * HHV)/106]$, where

$K = 7.267 * 10^{-8}$ (lb/scf)/ppm

C_{co} = Average of four consecutive 15 min. ave. CO concentration, ppm

F_d = 8710 dscf/MMBTU natural gas

$\%O_2 d$ = Hourly ave. % by vol. O2 dry, corresponding to C_{co}

Q_g = Fuel gas usage during the hour, scf/hr

HHV = Gross high heating value of fuel gas, BTU/scf

[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 218, 8-7-1981; RULE 218, 5-14-1999]

[Devices subject to this condition : D16, D22]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

D82.4 The operator shall install and maintain a CEMS to measure the following parameters:

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 : D16, D22]

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 : D11]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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 A 195- 3

Condition Number D 12- 3

Condition Number D 12- 5

Condition Number A 195- 7

Condition Number D 12- 6

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

[Devices subject to this condition : C2, C6, C19, C25]

E179.2 For the purpose of the following condition number(s), continuous monitoring 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]

[Devices subject to this condition : C2, C6, C19, C25]

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

In accordance with all mitigation measures stipulated in the Final California Energy Commission Decision for the 04-SPPE-1 project

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : D1, D5, D11]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

E193.2 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all mitigation measures stipulated in the final California Energy Commission decision for the 08-SPPE-1 project.

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : D16, C19, D22, C25]

H. Applicable Rules

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 : D16, D22]

I. Administrative

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

- 1296.1 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.

To comply with this condition, the operator shall, prior to the 1st compliance year hold a minimum NOx RTCs of 19,810 lbs/yr. This condition shall apply during the 1st 12 months of operation, commencing with the initial operation of the 1st gas turbine (Devices D1)

To comply with this condition, shall, prior to the beginning of all years subsequent to the 1st compliance year, hold a minimum of 9,905 lbs of NOx RTCs for operation of all equipment at the facility. 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, 4-20-2001]

[Devices subject to this condition : D1]

- 1296.2 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.

To comply with this condition, the operator shall, prior to the 1st compliance year hold a minimum NOx RTCs of 19,810 lbs/yr. This condition shall apply during the 1st 12 months of operation, commencing with the initial operation of the 1st gas turbine (Devices D5)

To comply with this condition, shall, prior to the beginning of all years subsequent to the 1st compliance year, hold a minimum of 9,905 lbs of NOx RTCs for operation of all equipment at the facility. 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, 4-20-2001]

[Devices subject to this condition : D5]

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

- 1296.3 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.

To comply with this condition, the operator shall prior to the 1st compliance year hold a minimum NOx RTCs of 30,086 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 13,692 lbs/yr of NOx RTCs for operation of the gas turbine.

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

This condition shall apply to the combined emissions of both turbines.

[RULE 2005, 5-6-2005]

[Devices subject to this condition : D16, D22]

K. Record Keeping/Reporting

FACILITY PERMIT TO OPERATE CITY OF RIVERSIDE PUBLIC UTILITIES DEPT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

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

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 (lbs/hr), and lbs/MM Cubic Feet. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per 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 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 2005, 4-20-2001]

[Devices subject to this condition : D1, D5, D16, D22]

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 after CEMS certification

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 for devices D16 and D22 commencing from the initial first fire of the turbine to the installation of the CO oxidation catalyst

[RULE 2012, 12-5-2003]

[Devices subject to this condition : D1, D5, D16, D22]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. I
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

ENGINEERING EVALUATION

COMPANY NAME AND ADDRESS

City of Riverside, Public Utilities Department
5901 Payton Avenue
Riverside, CA 92504

CONTACTS: Chuck Casey, Facility Manager, (951) 710-5010
Karl Lany, Consultant, (714) 282-8240

EQUIPMENT LOCATION

AQMD ID 139796
City of Riverside, Public Utilities Department
5901 Payton Avenue
Riverside, CA 92504

EQUIPMENT DESCRIPTION

Section H of the facility permit: Permit to Construct and temporary Permit to Operate

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
System 1: GAS TURBINES, POWER GENERATION					
GAS TURBINE NO. 1, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000 PC SPRINT, SIMPLE CYCLE, WITH WATER INJECTION, 490 MMBTU/HR WITH A/N 426694 Permit to Construct Issued: 04/29/05.	D1	C3	NOX: MAJOR SOURCE	CO: 2000 PPMV (5) [RULE 407]; CO: 6 PPMV NATURAL GAS (4) [RULE 1303 – BACT] NOX: 2.5 PPMV NATURAL GAS (4) [RULE 2005]; NOX: 106 PPMV NATURAL GAS [40 CFR 60 SUBPART GG]; NOX: 17.18 LBS/MMSCF NATURAL GAS (1) [RULE 2012] PM: 11 LBS/HR (5B) [RULE 475]; PM: 0.01 GRAINS/SCF (5) [RULE 475]; PM: 0.1 GRAINS/SCF (5A) [RULE 409] SO2: (9) [40 CFR 72 – ACID RAIN	A63.1, A63.2, A99.1, A99.2, A99.3, A195.1, A195.2, A195.4, A327.1, C1.1, C1.2, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, I296.1, K40.1, K67.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 2
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
GENERATOR, 49.8 MW				SOX: 150 PPMV NATURAL GAS (8) [40 CFR 60 SUBPART GG] VOC: 2 PPMV NATURAL GAS (4) [RULE 1303 - BACT]	
SELECTIVE CATALYTIC REDUCTION, NO. 1, CORMETECH, 1227 CU FT; WIDTH: 8 FT 9.6 IN; HEIGHT: 6 FT 6 IN; LENGTH: 2 FEET 7.2 IN WITH A/N: 426696 Permit to Construct Issued: 04/29/05 AMMONIA INJECTION, GRID	C2	C3 S4		NH3: 5 PPMV (4) [RULE 1303 - BACT]	A195.3, D12.2, D12.3, D12.4, E179.1, E179.2
CO OXIDATION CATALYST, ENGLEHARD, INC., PLATINUM-ON-ALUMINA, 82 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N: 426696 Permit to Construct Issued: 04/29/05	C3	D1 C2			
STACK NO. 1, HEIGHT: 80 FT; DIAMETER: 13 FT A/N 426694 Permit to Construct Issued: 04/29/05	S4	C2			
System 2: GAS TURBINES, POWER GENERATION					
GAS TURBINE NO. 2, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000 PC SPRINT, SIMPLE CYCLE, WITH WATER INJECTION, 490 MMBTU/HR WITH A/N 426695 Permit to Construct Issued: 04/29/05	D5	C7	NOX: MAJOR SOURCE	CO: 2000 PPMV (5) [RULE 407]; CO: 6 PPMV NATURAL GAS (4) [RULE 1303 - BACT] NOX: 2.5 PPMV NATURAL GAS (4) [RULE 2005]; NOX: 106 PPMV NATURAL GAS [40 CFR 60 SUBPART GG]; NOX: 17.18 LBS/MMSCF NATURAL GAS (1) [RULE 2012] PM: 11 LBS/HR (5B) [RULE 475]; PM: 0.01 GRAINS/SCF (5) [RULE 475]; PM: 0.1 GRAINS/SCF (5A) [RULE 409] SO2: (9) [40 CFR 72 - ACID RAIN PROVISIONS] SOX: 150 PPMV NATURAL GAS (8) [40 CFR 60 SUBPART	A63.1, A63.2, A99.1, A99.2, A99.3, A195.1, A195.2, A195.4, A327.1, C1.1, C1.2, D12.1, D29.1, D29.2, D29.3, D82.1, D82.2, E193.1, I296.2, K40.1, K67.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 3
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
GENERATOR, 49.8 MW				GG] VOC: 2 PPMV NATURAL GAS (4) [RULE 1303 - BACT]	
SELECTIVE CATALYTIC REDUCTION, NO.2, CORMETECH, 1227 CU FT; WIDTH: 8 FT 9.6 IN; HEIGHT: 6 FT 6 IN; LENGTH: 2 FEET 7.2 IN WITH A/N: 426697 Permit to Construct Issued: 04/29/05 AMMONIA INJECTION, GRID	C6	S8		NH3: 5 PPMV (4) [RULE 1303 - BACT]	<u>A195.3, D12.2,</u> <u>D12.3, D12.4,</u> <u>E179.1, E179.2</u>
CO OXIDATION CATALYST, ENGLEHARD, INC., PLATINUM-ON-ALUMINA, 82 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N: 426697 Permit to Construct Issued: 04/29/05	C7	D5 S8			
STACK NO. 2, HEIGHT: 80 FT; DIAMETER: 13 FT A/N 426695 Permit to Construct Issued: 04/29/05	S8	C6 C7			
System 3: GAS TURBINES, POWER GENERATION					
GAS TURBINE NO. 3, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000 PC SPRINT, SIMPLE CYCLE, HEAT INPUT REFERENCED AT 100 DEGREES F, WITH WATER INJECTION, 490 MMBTU/HR A/N 481647	D16	C18	NOX: MAJOR SOURCE	CO: 2000 PPMV (5) [RULE 407]; CO: 4 PPMV NATURAL GAS (4) [RULE 1303 - BACT] NOX: 2.3 PPMV NATURAL GAS (4) [RULE 2005]; NOX: 25 PPMV NATURAL GAS (8) [40 CFR 60 SUBPART KKKK]; NOX: 96.66 LBS/MMSCF NATURAL GAS (1) [RULE 2012]; NOX: 12.50 LBS/MMSCF NATURAL GAS (2A) [RULE 2012] PM: 11 LBS/HR (5) [RULE 475]; PM: 0.01 GRAINS/SCF (5A) [RULE 475]; PM: 0.1 GRAINS/SCF (5B) [RULE 409] PM10: 6.42 LBS/MMSCF (7) [RULE 1303 - OFFSET]	A63.3, A63.4, A63.5, A99.4, A99.5, A99.6, A99.7, A195.4, A195.5, A195.6, A327.1, A433.1, A433.2, C1.3, C1.4, D12.1, D29.4, D29.5, D29.6, D82.3, D82.4, E193.2, H23.1, I296.3, K40.1, K67.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 4
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
GENERATOR, 49.8 MW				SO2: (9) [40 CFR 72 – ACID RAIN PROVISIONS]; 0.06 LB/MMBTU (8) [40 CFR 60 SUBPART KKKK] VOC: 2 PPMV NATURAL GAS (4) [RULE 1303 – BACT]	
CO OXIDATION CATALYST, BASF CATALYST LLC, PLATINUM AND ALUMINA, MODEL CANMET, 90 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N: 481651	C18	D16 C19			
SELECTIVE CATALYTIC REDUCTION, NO.3, CORMETECH, 1024 CU FT; WIDTH: 8 FT 11.6 IN; HEIGHT: 6 FT 5 IN; LENGTH: 3 FEET 2 IN WITH AMMONIA INJECTION, GRID A/N: 481651	C19	C18 S21		NH3: 5 PPMV (4) [RULE 1303 – BACT]	A195.7, D12.4, D12.5, D12.6, E179.1, E179.2, E193.2
STACK NO. 3, HEIGHT: 80 FT; DIAMETER: 13 FT A/N 481647	S21	C19			
System 4: GAS TURBINES, POWER GENERATION					
GAS TURBINE NO. 4, NATURAL GAS, GENERAL ELECTRIC, MODEL LM6000 PC SPRINT, SIMPLE CYCLE, HEAT INPUT REFERENCED AT 100 DEGREES F, WITH WATER INJECTION, 490 MMBTU/HR A/N 481649	D22	C24	NOX: MAJOR SOURCE	CO: 2000 PPMV (5) [RULE 407]; CO: 4 PPMV NATURAL GAS (4) [RULE 1303 – BACT] NOX: 2.3 PPMV NATURAL GAS (4) [RULE 2005]; NOX: 25 PPMV NATURAL GAS (8) [40 CFR 60 SUBPART KKKK]; NOX: 96.66 LBS/MMSCF NATURAL GAS (1) [RULE 2012]; NOX: 12.50 LBS/MMSCF NATURAL GAS (2A) [RULE 2012] PM: 11 LBS/HR (5) [RULE 475]; PM: 0.01 GRAINS/SCF (5A) [RULE 475]; PM: 0.1 GRAINS/SCF (5B) [RULE 409]	A63.3, A63.4, A63.5, A99.4, A99.5, A99.6, A99.7, A195.4, A195.5, A195.6, A327.1, A433.1, A433.2, C1.3, C1.4, D12.1, D29.4, D29.5, D29.6, D82.3, D82.4, E193.2, H23.1, I296.3, K40.1, K67.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 5
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
GENERATOR, 49.8 MW				PM10: 6.42 LBS/MMSCF (7) [RULE 1303 - OFFSET] SO2: (9) [40 CFR 72 - ACID RAIN PROVISIONS]; 0.06 LB/MMBTU (8) [40 CFR 60 SUBPART KKKK] VOC: 2 PPMV NATURAL GAS (4) [RULE 1303 - BACT]	
CO OXIDATION CATALYST, BASF CATALYST, LLC, CANMET, PLATINUM AND ALUMINA, 90 CU FT; HEIGHT: 2 FT 4 IN; WIDTH: 2 FT 0 IN; DEPTH: 0 FT 3 IN A/N: 481650	C24	D22 C25			
SELECTIVE CATALYTIC REDUCTION, NO.4, CORMETECH, 1024 CU FT; WIDTH: 8 FT 11.6 IN; HEIGHT: 6 FT 5 IN; LENGTH: 3 FEET 2 IN WITH A/N: 481650	C25	C24 S27		NH3: 5 PPMV (4) [RULE 1303 - BACT]	A195.7, D12.4, D12.5, D12.6, E179.1, E179.2, E193.2
AMMONIA INJECTION, GRID STACK NO. 4, HEIGHT: 80 FT; DIAMETER: 13 FT A/N 481649	S27	C25			
Process 2: AMMONIA STORAGE					
STORAGE TANK, FIXED ROOF, AQUEOUS AMMONIA 19 PERCENT, WITH A VAPOR RETURN LINE, 12000 GALS A/N: 426698 Permit to Construct Issued: 04/29/05	D11				C157.1, E144.1, E193.1

BACKGROUND

City of Riverside, Public Utilities Department submitted an application on 3/19/08 to the California Energy Commission (CEC) for a small power plant exemption (SPPE), which, if granted, would exempt them from the CEC's licensing requirements. The 95 MW project consists of the addition of two simple cycle gas turbines each venting to a SCR/CO oxidation catalyst to be installed and operated at their existing Riverside Energy Resource Center (RERC) facility, owned and operated by the Riverside Public Utilities (RPU), at 5901 Payton Avenue in Riverside. The project also includes a diesel black start engine; however, RERC has had some problems with the equipment vendor and as a result has had to put the delivery of the engine back out to bid. As a result, it is likely that a different make and model of the equipment will be proposed for this project. According to the facility consultant, this process will take additional time and RERC requests that the permit to construct for the turbines and air pollution control equipment be processed without the engine to ensure that the power

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 6
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

plant will be constructed, commissioned, and operating in a timely manner. RERC will have to apply for a Title V modification at a later date to include the engine in the permit.

The existing facility is a 96 MW peaking plant that received a SPPE exemption from the CEC on 12/15/04. A Title V and NOx RECLAIM permit was issued to the facility on 4/29/05 and the facility later came online in 2006. Two simple cycle gas turbines (identical to the proposed new units), two SCR/CO oxidation catalysts and an aqueous ammonia tank, which will also supply the new units, along with an AQMD Rule 219 exempt cooling tower are currently operating at this facility, which is located adjacent to a waste water treatment plant; Riverside Water Quality Control Plant, operating under AQMD ID 9961. The treatment plant provides reclaimed water for turbine water injection during operation. Figure 1 shows an overview of the facility layout.

When RERC submitted the applications for the expansion project, their intent was to access PM10 credits from the priority reserve in accordance with the provisions of Rule 1309.1. However, as a result of AQMD's permit moratorium, PM10 credits from AQMD's internal bank are no longer available to electrical utility companies. In order to keep the project moving forward, RERC purchased ERCs for PM10, ROG, and SOx from the open market. Although, ROG and SOx were determined to be below Rule 1304 thresholds of 4 tons per year; the moratorium does not allow the release of any credits from the internal bank for any criteria pollutant under any Rule 1304 exemption. NOx RTCs will also be required for this RECLAIM facility.

The addition of the new units will also increase the facility's NOx emissions above 10 tons per year, which will classify it as a major source. This will require a public notice as a significant modification to the existing Title V permit as well as a Rule 212(g) notice.

APPLICATIONS

RERC submitted six applications for this project which are summarized in table 1.

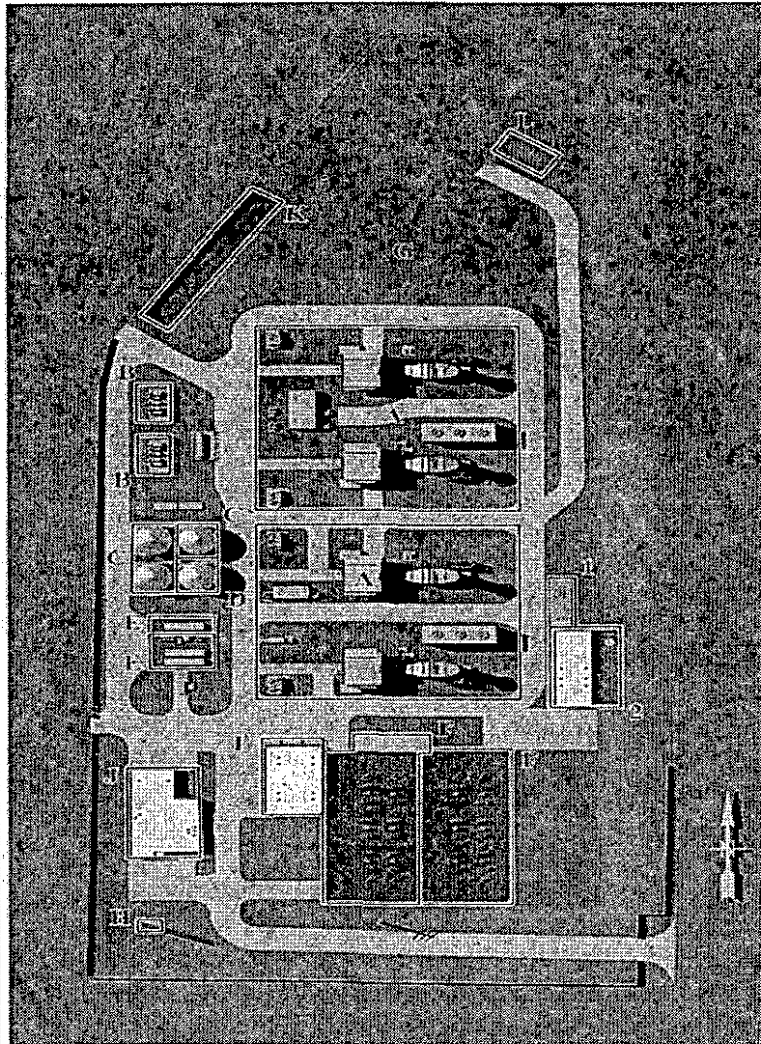
Table 1 Application Summary

A/N	Equipment	Submittal Date	Deemed Complete	BCAT/CCAT	Schedule	Base Fee ^(a)	XPP Fee	Total Filing Fees
481647	LM6000 Gas Turbine, 48 MW	4/17/2008	5/21/2008	13008	D	\$4,071.37	\$2,035.69	\$6,107.06
481649	LM6000 Gas Turbine, 48 MW	4/17/2008	5/21/2008	13008	D	\$2,035.69	\$1,017.85	\$3,053.54
481650	SCR/CO Catalyst	4/17/2008	5/21/2008	81	C	\$2,949.92	\$1,474.96	\$4,424.88
481651	SCR/CO Catalyst	4/17/2008	5/21/2008	81	C	\$1,474.96	\$737.48	\$2,212.44
482512	TV/RECLAIM Amendment	4/17/2008	5/21/2008	555009	-	\$1,534.21	-	\$1,534.21
482515	Emergency Engine	5/14/2008	5/21/2008	43902	B	\$1,865.02	\$932.51	\$2,797.53
Total								\$20,129.66

^(a) The two turbines and two SCR/CO catalysts are identical; therefore, the second unit receives a 50% discount per Rule 301(c)(1)(F).

There will also be an additional fee of \$8,626.47 for 80 hours of work completed for the air quality analysis in accordance with Table IIA of Rule 301 (amended 5/4/07). The project triggers a public notice per Rule 212(g) and a significant modification per Rule 3006; therefore, per Table IIB, for the County of Riverside, the applicable fee is \$1,053.57. An additional charge of \$9,680.04 (\$8,626.47 + \$1,053.47) will be invoiced to the facility at the conclusion of the permitting process.

RERC FACILITIES



RERC UNITS 1 & 2

- A Units 1 & 2
- B Fuel Gas Compressor
- C Demineralized Water Tank and Pumps
- D Raw Water Tanks and Pumps
- E Process Waste Water Recycling
- F Switchyard (Original 2 Bays)
- G Not Used
- H Communications Tower and Shed
- I Warehouse
- J Administration Building
- K Retention Basin

RERC UNITS 3 & 4

- A Units 3 & 4
- B Fuel Gas Compressor
- C Demineralized Water Tank and Pumps
- D Not Used
- E Process Waste Water Recycling
- F Switchyard (2 New Bays)
- G Temporary Construction Units 3 & 4

ANCILLARY FACILITIES

- 1 Water Laboratory
- 2 Scheduling and Dispatch Building

Figure 1 RERC Facility Layout with Proposed Units 3&4 (prepared by Power Engineers)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 8
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

COMPLIANCE REVIEW

The facility was inspected on 10/2/08 for RECLAIM audits for compliance year 2006 and 2007. Two (2) Notices of Violations (P45926 & P45927) were issued as a result of the inspection. NOV P45926 was issued for failure to submit reports in a timely manner and NOV P45927 was issued for using the incorrect NOx emission factor to calculate emissions during the interim reporting period.

PROCESS DESCRIPTION¹

GAS TURBINE GENERATORS – A/N 481647 & 481649

The power plant is a peaking operation that provides power to the City of Riverside primarily during peak summer hours when electrical demand is high. The two proposed units are natural gas GE LM6000 PC SPRINT™ turbines, which are both identical to each other and to the two existing units on site. These turbines will be used in a simple cycle application in which the exhaust gas vents directly to the atmosphere as opposed to a combined cycle configuration, in which the heat from the exhaust gas is used to generate steam for a steam turbine.

The LM6000 is an aeroderivative turbine, meaning that it is gas turbine derived from an aircraft engine; the high bypass, turbofan CF6-80C2. This type of turbine is ideally suited for peaking generation in which it is important to start rapidly to provide immediate support in the event of a contingency on the electrical transmission system; full load could be reached in approximately 10 minutes from start-up.

The LM6000 is a dual-rotor unit; a rotor consists of a turbine, drive shaft, and one axial-flow compressor, and an aerodynamically coupled power turbine. It has two concentric rotor shafts; the low pressure (LP) compressor and turbine form the LP rotor, and the high pressure (HP) compressor and turbine form the HP rotor. The LP rotor is the driven-equipment driver, providing for direct coupling of the gas turbine low pressure system to the electrical generator. The low pressure compressor is 5-stage and the high pressure compressor is 14-stage. The low pressure turbine is 5-stage and the high pressure turbine is 2-stage. It is equipped with an evaporative cooling system that will be used for cooling of combustion air and each unit will use the LP turbine to power the output shaft with a direct coupling to the 3600 rpm generator for 60 Hz power generation. The generator is a synchronous, two pole cylindrical rotor generator with forced air cooling.

The turbines utilize what GE coins as SPRINT™ (spray intercooled) technology to enhance the power output of the turbines and thereby creating a more efficient engine. Essentially this is achieved through the introduction of water into the turbines' working medium. The added water reduces compressor power consumption and allows for higher firing of the turbine unit as well as due to the increased mass flow passing through the turbine blades. Water droplets are injected into the air stream entering the compressors, also known as "over-fogging" or "wet compression", which allows an increase to the power available due to the reduction of work required for compression of inlet air, as latent heat for evaporation of this water cools the inlet air stream when it passes the compressor stages. According to the GE literature in the project file, the SPRINT™ system could increase power output of 9% at ISO to more than 20% at days where temperatures are 90°F and hotter – the advantage of this system is more pronounced at hotter days since the higher ambient temperature has a negative impact on heat rate.

¹ For a more in-depth description of the facility and all the auxiliary equipment (switch yard, water tanks, pumps, compressors, and other AQMD exempt equipment), please refer to the copy of the application for SSPE made to the CEC in the project file.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 9
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

RERC is proposing to use reclaimed water from the adjacent wastewater treatment plant for power augmentation and for water injection. Table 2 summarizes the specifications for these turbines.

Table 2 LM6000 PC SPRINT™ Gas Turbine Specifications^(a)

Parameter	Value
Manufacturer	General Electric
Fuel Type	California Public Utilities Commission Quality Natural Gas
Lower Heating Value (LHV)	20,644 Btu/lb
Heat Input	422.6 MMBtu/hr at LHV ^(b)
Fuel Input	20,469 lb/hr
Heat Rate	8,543 Btu/kW-hr at LHV
Maximum Exhaust Flow	1,052,898 lb/hr
Exhaust Temperature	841.8°F
Water Injection Rate	19,460 lb/hr
Gross Power Output	49,460 kW
NOx Emissions with Water Injection	25 ppmvd @ 15% O2

^(a) Information based on GE data and site case no. 107; 100°F dry bulb ambient temperature, 19% relative humidity, 730 feet altitude and 14.313 psia atmospheric pressure. These values are dependant on ambient conditions.

^(b) Calculation estimates are based on 490.35 MMBtu/hr at HHV.

CO OXIDATION CATALYST & SCR – A/N 481650 AND 481651

A carbon monoxide (CO) oxidation catalyst is located downstream of the gas turbine where it is used to control CO, VOC and HAP emissions. The catalyst is located within a structural catalyst frame integral to the housing, with room for additional layers of catalyst.

The maximum pressure drop through the catalyst will be approximately 1.5 inches of water column. The system is equipped with an alarm which will sound when the catalyst exceeds its maximum allowable operating temperature of 1250 °F. Table 3 summarizes the specifications for the oxidation catalyst.

Table 3 CO Oxidation Catalyst Specifications^(a)

Parameter	Value
Make	BASF Catalyst LLC
Model	CAMET
Type	Platinum & Aluminum on Stainless Steel Substrate
Space Velocity	180,000 hr ⁻¹
Dimensions per Block	3.14" d x 24.4375" w x 28.45" h
Number of Blocks	80
Configuration	1 d x 8 w x 10 h
Minimum Operating Temperature	500 °F
Maximum Operating Temperature	1,250 °F
Maximum Outlet CO	6 ppmvd @ 15% O2
Maximum Outlet VOC	2 ppmvd @ 15% O2
Guaranteed Catalyst Life	25,000 hrs
SO2 to SO3 Conversion	31% to 76%
NO to NO2 Conversion	19% to 43%

^(a) The control system is fabricated by Express Integrated Technologies, Inc.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 10
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

NOx emissions are controlled with a SCR catalyst. The SCR will be located within a structural catalyst frame downstream of the CO oxidation catalyst. In order to achieve the proposed 2.3 ppmvd NOx concentration limit, additional catalysts will be installed in the structural frame. The expected pressure drop across the catalyst is 5.2 inches of water column and the guaranteed pressure drop is 6 inches of water column. The expected pressure drop is expected to be higher than units 1&2, due to the additional catalysts installed in the SCR. The system is equipped with an alarm that is activated in the event that the catalyst exceeds the maximum operating temperature of 1,022 °F. Quench air is used to cool the exhaust temperature via a tempering air system that includes a fan capable of delivering 18,200 acfm of quench air.

Ammonia for the SCR will be provided by the existing permitted ammonia tank (A/N 426698) located on site. The ammonia is vaporized at the vaporization skid and diluted with air dilution fans and injected into the exhaust gas stream via a grid of nozzles located upstream of the SCR of the catalyst and downstream of the CO Oxidation catalyst. The subsequent chemical reactions reduce NOx to elemental nitrogen and water resulting in outlet NOx concentrations of 2.3 ppmvd at 15% O2 or less. The exhaust will be discharged through 80 foot smoke stacks 13 feet in diameter. Each turbine will have its own individual smoke stack. Table 4 summarizes the specifications for the SCR.

Table 4 SCR Catalyst Specifications^(a)

Parameter	Value
Make	Cormetech
Model	CMHT27
Type	Vanadium, Titanium & Tungsten
Space Velocity	13,725 hr ⁻¹
Dimensions per Module	38" d x 107.625" w x 77" h
Number of Modules	8
Configuration	1 d x 2 w x 4 h
Minimum Operating Temperature	515 °F
Maximum Operating Temperature	870 °F (continuous), 932 °F (<500 hrs), 1,022 °F (<4 hrs)
Ammonia Injection Rate	76 lb/hr
Guaranteed Outlet NOx	2.3 ppmvd @ 15% O2
Maximum Outlet NH3 Slip	5 ppmvd @ 15% O2
Guaranteed Catalyst Life	25,000 hrs

^(a) The control system is fabricated by Express Integrated Technologies, Inc.

EMISSION CALCULATIONS

GAS TURBINE GENERATORS & AIR POLLUTION CONTROL EQUIPMENT

The basis for the emission calculations of the project is from the anticipated hours of operation and the fuel consumed during each mode of operation; emissions during each mode are different and are required to be calculated independently. Table 5 summarizes the proposed operating schedule and the fuel usages during each mode of operation for a single gas turbine.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 11
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 5 Proposed Operating Schedule and the Fuel Usages of a Single Gas Turbine

Period of Operation	Mode of Operation	Hours of Operation	Fuel Usage (MMscf) ^(a)
DAILY	Normal	16	7
	Start-ups	4	2
	Shutdowns	4	2
	Total	24	11
MONTHLY	Normal	100	47
	Start-ups	20	9
	Shutdowns	20	9
	Maintenance	10	5
	Total	150	70
ANNUAL (Normal Year)	Normal	920	430
	Start-ups	150	70
	Shutdowns	150	70
	Maintenance	10	5
	Total	1,230	574
ANNUAL (Commissioning Year)	Commissioning	200	93
	Normal	720	336
	Start-ups	150	70
	Shutdowns	150	70
	Maintenance	10	5
	Total	1,230	574

^(a) Calculated as Hours of Operation (hrs) x 0.467 MMscf/hr

NORMAL OPERATION

Normal operation is achieved when the gas turbines and associated air pollution control equipment are operating at design levels. Although emissions will vary depending on ambient conditions, they will remain below guaranteed levels of 2.3 ppmvd-NO_x, 4.0 ppmvd-CO and 2.0 ppmvd-VOC at 15% O₂ and less than 3 lb-PM₁₀/hr.

START-UP

Start-up is the period of time the gas turbines are heated to their normal temperature range from a cold/ambient temperature or the period of time from initial firing of the units to the time permitted emission levels are reached. The NO_x and CO concentrations during this mode of operation are high due to the phased effectiveness of the SCR and CO catalysts that gradually come online as the operating temperatures are being reached. The turbines reach full load in approximately ten minutes with water injection commencing during the eighth minute. Table 6 shows the accumulated NO_x emissions during the first hour of operation.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 12
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 6 Start-up NOx Emissions

Time Period		Accumulated NOx (lbs)	Description
Start (min)	End (min)		
0	10	2.50	The accumulated value was provided by GE and shown in the start-up curves for an LM6000 SPRINT™ turbine. The start-up curves are in the application package.
10	25	6.15	The calculated value ^(a) is based on the SCR coming online after the turbine reaches full load in the tenth minute. Thus from the tenth to the twenty fifth minute the NOx emissions are being controlled from 25 ppmvd to 2.3 ppmvd. The calculated value is an average of the concentrations at full firing rate over the fifteen minute period.
25	60	2.37	The calculated accumulated value ^(b) is based on the turbine operating at the BACT concentration limit of 2.3 ppmvd at full firing rate for the remaining 35 minutes of the hour.
Total		11.02	The total accumulated value over 60 minutes will be used in the emission calculations and will be placed on the permit. Compliance will be verified with CEMS data.

^(a) $[(45.16 + 4.06)(\text{lb/hr}) + 2] \times 15 \text{ min} \div 60 \text{ min/hr} = 6.15 \text{ lbs}$

^(b) $4.06 (\text{lb/hr}) \times 35 \text{ min} \div 60 \text{ min/hr} = 2.37 \text{ lbs}$

Each SCR is equipped with an electrically pre-heated ammonia injection chamber where the ammonia is atomized and delivered to the distribution header and injection grid. The pre-heater minimizes the amount of time to reach normal operation from a cold start. Thus the turbine should be able to reach BACT levels shortly after the tenth minute. However, in the event the pre-heater is non-operational at cold start, additional time would be required to reach normal BACT levels. Therefore, start-up mass emission rates placed on the permit will ensure compliance.

SHUTDOWN

Shutdown is the period of time the gas turbines are allowed to cool down from their normal temperature range to a cold/ambient temperature or the period of time from initiation of the shutdown sequence to cessation of firing. According to GE, shutdown will take 8 minutes. Upon the initiation of shutdown, ammonia injection will be turned off and water injection will be turned off approximately 7 minutes into shutdown. Thus, emissions will be higher than normal operation during this mode; however, they are lower than start-up emissions. It is estimated that the NOx emissions will be 6.14 lbs for the shutdown hour. In order to minimize emissions during this mode of operation, NOx and CO mass emissions rate conditions, which could be verified with CEMS data, will be placed on the permit.

COMMISSIONING

Commissioning is the process of fine-tuning the equipment to ensure the proper performance of each of the turbines and associated control equipment following initial installation. The turbines will be tested at zero loads, partial load and full load in order to optimize the turbine machinery, gas combustors, and control equipment. Emissions are expected to be greater during commissioning than during normal operation as air pollution control equipment may only be partially operational or not operational at all. This mode affects only the initial year of operation and will not to exceed 200 hours per turbine. In order to minimize emissions, RERC will commission each turbine in sequence and the commissioning periods will not overlap.

MAINTENANCE

Maintenance is the period of time requested by the applicant to re-tune the gas turbine emission control systems. The SCR is expected to require maintenance time to rebalance and optimize the ammonia grid and catalyst modules. Each unit will be allotted a maximum of ten hours per year, similar to the amount of hours granted for existing units 1&2.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 13
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 7. Gas Turbine Data

Parameter	Value	Unit	Source
Heat Input	490.35	MMBtu/hr	Applicant
Gas HHV	1050	MMBtu/MMscf	AQMD default
Fuel use	0.467	MMscf/hr	
	11.208	MMscf/day	Applicant
	70.05	MMscf/mo	Applicant
	574.41	MMscf/yr	Applicant
Start-ups/Shutdowns	4	each per day	Applicant
	20	each per month	Applicant
	150	each per year	Applicant
Commissioning	200	hours first year	Applicant
Maintenance	10	hours per turbine	Applicant
Fd	8710	dscf/MMBtu	Fd for natural gas at 68°F
SMV	385.44	scf/lb-mole	v = RT/P at 68°F and 14.7 psia
15% O2 correct.	3.5424	%/%	calculated as 20.9/(20.9-15)
NOx MW	46	lb/lb-mole	calculated as NO2
CO MW	28	lb/lb-mole	
ROG MW	16	lb/lb-mole	calculated as CH4
NH3 MW	17	lb/lb-mole	

Table 8. Gas Turbine Emission Factors

Pollutant	UNCONTROLLED			CONTROLLED			Source
	ppmvd	lb/MMBtu ^(a)	lb/MMscf ^(b)	ppmvd	lb/MMBtu ^(c)	lb/MMscf ^(d)	
NOx	25	0.0921	96.66	2.3	0.0085	8.89	Applicant
SOx	-	0.00064	0.67	-	0.00064	0.67	0.25 gr-H2S/100scf gas
PM10	-	0.0061	6.42	-	0.0061	6.42	Vendor guarantee 3.0 lb/hr
CO	42	0.0941	98.84	4.0	0.0090	9.41	Manufacturer
ROG	5.0	0.0064	6.72	2.0	0.0026	2.69	Manufacturer
NH3	5.0	0.0068	7.14	5.0	0.0068	7.14	Manufacturer

^{(a), (c)} EF (lb/MMBtu) = ppmvd x 1E-6 x MW (lb/lb-mole) = SMV (scf/lb-mole) x Fd (dscf/MMBtu) x 15% O2 correction

^{(b), (d)} EF (lb/MMscf) = EF (lb/MMBtu) x HHV (MMBtu/MMscf)

Table 9. Gas Turbine Hourly and Daily Emission Rates

Pollutant	Normal (lb/hr) ^(a)	Start-up (lb/hr) ^(b)	Shutdown (lb/hr) ^(c)	Uncontrolled (lb/hr) ^(d)	Uncontrolled (lb/day) ^(e)	Controlled (lb/day) ^(f)
NOx	4.15	11.02	6.14	45.14	1,083.36	135.09
SOx	0.31	0.31	0.31	0.31	7.51	7.51
PM10	3.00	3.00	3.00	3.00	72.00	72.00
CO	4.40	11.60	10.92	46.16	1,107.85	160.42
ROG	1.26	1.49	1.41	3.14	75.36	31.70
NH3	3.34	3.34	3.34	3.34	80.07	80.07

^(a) Fuel Use (MMscf/hr) x Controlled EF (lb/MMscf)

^{(b), (c)} Provided by Applicant.

^(d) Fuel Use (MMscf/hr) x Uncontrolled EF (lb/MMscf)

^(e) Fuel Use (MMscf/day) x Uncontrolled EF (lb/MMscf)

^(f) SU (hrs/day) x SU (lb/start) + SD (hrs/day) x SD (lbs/shut) + [Fuel use (MMscf/day) - 2 x SU/SD (hours/day) x Fuel Use (MMscf/hr)] x Controlled EF (lb/MMscf)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 14
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 10 Gas Turbine Commissioning Year Emissions

Pollutant	Commission Emissions (lbs) ^(a)	Commission Fuel Used (MMscf) ^(b)	Maintenance Emissions (lbs) ^(c)	Maintenance Fuel Used (MMscf) ^(d)	Fuel for Normal Ops (MMscf) ^(e)	Normal Ops Emissions (lb) ^(f)	Commission Emissions (lbs/yr) ^(g)	Commission Emissions (lbs/mo) ^(h)	30 Day Average (lbs/day) ⁽ⁱ⁾
NOx	9,028	93.40	451	4.67	476.34	5,564	15,043	n/a	n/a
SOx	63	93.40	3	4.67	476.34	319	385	47	1.56
PM10	600	93.40	30	4.67	476.34	3,060	3,690	450	15.00
CO	9,232	93.40	462	4.67	476.34	6,543	16,237	6,924	230.80
ROG	628	93.40	31	4.67	476.34	1,339	1,999	471	15.70
NH3					476.34	3,403	3,403	500	16.68

- ^(a) Commissioning hours (hrs/yr) x Fuel Use (MMscf/hr) x Uncontrolled EF (lb/MMscf)
- ^(b) Commissioning hours (hrs/yr) x Fuel Use (MMscf/hr)
- ^(c) Maintenance hours (hrs/yr) x Fuel Use (MMscf/hr) x Uncontrolled EF (lb/MMscf)
- ^(d) Maintenance hours (hrs/yr) x Fuel Use (MMscf/hr)
- ^(e) Fuel Use (MMscf/yr) - Commissioning Fuel Use (MMscf/yr) - Maintenance Fuel Use (MMscf/yr)
- ^(f) $SU \text{ (hrs/yr)} \times SU \text{ (lb/start)} + SD \text{ (hrs/yr)} \times SD \text{ (lbs/shut)} + [\text{Normal Ops Fuel use (MMscf/yr)} - 2 \times SU/SD \text{ (hours/yr)} \times \text{Fuel Use (MMscf/hr)}] \times \text{Controlled EF (lb/MMscf)}$
- ^(g) Commissioning (lbs/yr) x Maintenance Emissions (lbs/yr) + Normal Ops Emissions (lbs/yr)
- ^(h) Fuel Use (MMscf/mo) x Uncontrolled EF (lb/MMscf)
- ⁽ⁱ⁾ Commissioning Year Emissions (lb/mo) ÷ 30 days/mo

Table 11 Gas Turbine Normal Year Emissions

Pollutant	Maintenance Emissions (lbs) ^(a)	Maintenance Fuel Used (MMscf) ^(b)	Fuel for Normal Ops (MMscf) ^(c)	Normal Ops Emissions (lb) ^(d)	Normal Emissions (lbs/yr) ^(e)	Normal Emissions (lbs/mo) ^(f)	30 Day Average (lbs/day) ^(g)
NOx	451	4.67	569.74	6,395	6,846	n/a	n/a
SOx	3	4.67	569.74	382	385	47	1.56
PM10	30	4.67	569.74	3,660	3,690	450	15.00
CO	462	4.67	569.74	7,423	7,884	1,352	45.05
ROG	31	4.67	569.74	1,591	1,622	215	7.17
NH3			569.74	4,070	4,070	500	16.68

- ^(a) Maintenance hours (hrs/yr) x Fuel Use (MMscf/hr) x Uncontrolled EF (lb/MMscf)
- ^(b) Maintenance hours (hrs/yr) x Fuel Use (MMscf/hr)
- ^(c) Fuel Use (MMscf/yr) - Maintenance Fuel Use (MMscf/yr)
- ^(d) $SU \text{ (hrs/yr)} \times SU \text{ (lb/start)} + SD \text{ (hrs/yr)} \times SD \text{ (lbs/shut)} + [\text{Normal Ops Fuel use (MMscf/yr)} - 2 \times SU/SD \text{ (hours/yr)} \times \text{Fuel Use (MMscf/hr)}] \times \text{Controlled EF (lb/MMscf)}$
- ^(e) Maintenance Emissions (lbs/yr) + Normal Ops Emissions (lbs/yr)
- ^(f) $SU \text{ (hrs/mo)} \times SU \text{ (lb/start)} + SD \text{ (hrs/mo)} \times SD \text{ (lbs/shut)} + \text{Maintenance Emissions (lbs)} + [\text{Fuel use (MMscf/mo)} - 2 \times SU/SD \text{ (hours/mo)}] \times \text{Fuel Use (MMscf/hr)} - \text{Maintenance Hours (hrs)} \times \text{Fuel Use (MMscf/hr)}] \times \text{Controlled EF (lb/MMscf)}$
- ^(g) Normal Emissions (lb/mo) ÷ 30 days/mo

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 15
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

RULES EVALUATION

RULE 212-STANDARDS FOR APPROVING PERMITS AND ISSUING PUBLIC NOTICES

Rule 212 requires that a person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer. Rule 212(c) states that a project requires written notification if there is an emission increase for ANY criteria pollutant in excess of the daily maximums specified in Rule 212(g), if the equipment is located within 1,000 feet of the outer boundary of a school, or if the MICR is equal to or greater than one in a million (1×10^6) during a lifetime (70 years) for facilities with more than one permitted unit, source under Regulation XX, or 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 (10×10^6) using the risk assessment procedures and toxic air contaminants specified under Rule 1402; or, ten in a million (10×10^6) during a lifetime (70 years) for facilities with a single permitted unit, source under Regulation XX, or equipment under Regulation XXX.

FACILITY / EQUIPMENT AND SCHOOL LOCATIONS

The closest kindergarten to grade 12 school located near the facility is 1.0 mile away as determined by Google Maps (<http://maps.google.com/maps>). Table 12 summarizes name, location and proximity of the nearby schools.

Table 12 K-12 Schools Near RERC Facility

Name of School	Address	Approximate Distance in miles (ft)
Indian Hills Elementary School	7750 Linares Ave., Riverside, CA	1.0 (5,280)
Terrace Elementary School	6601 Rutland Ave., Riverside, CA	1.1 (5,808)
Kinder Care	7920 Limonite Ave. #G, Riverside, CA	1.2 (6,336)
Norte Vista High School	6585 Crest Ave., Riverside, CA	1.3 (6,864)
Harvest Christian School	6115 Arlington Ave., Riverside, CA	1.5 (7,920)
Arlanza Elementary School	5891 Rutland Ave., Riverside, CA	1.6 (8,448)
Adams Elementary School	8362 Colorado Ave., Riverside, CA	1.6 (8,448)
Foothill Elementary School	8230 Wells Ave., Riverside, CA	1.9 (10,032)

Therefore, since the facility is not located within 1,000 feet of a K-12 school, a public notice is not required for section (c)(1).

DAILY EMISSIONS

As shown in table 13, the daily emissions from this project exceed the daily thresholds of Rule 212(g) for NOx, PM10 and ROG; therefore, a public notice is required for section (c)(2) which will be followed by a 30-day public review and comment period.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 16
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 13 Daily Emissions

Pollutant	Turbines	R212(g) Daily Threshold	Public Notice triggered?
NOx	135.09	40	Yes
SOx	7.51	60	No
PM10	72.00	30	Yes
CO	195.59	220	No
ROG	31.70	30	Yes

MAXIMUM INDIVIDUAL CANCER RISK (MICR)

The total facility wide MICR is less than 1×10^{-6} , as shown in the discussion under the Regulation XIV section; therefore, a public notice is not required for section (c)(3).

RULE 218 – CONTINUOUS EMISSION MONITORING

The two turbines will be required to have CEMS to monitor both CO and NOx to verify compliance with hourly concentrations and emission limits. The CO CEMS will need to comply with the requirements of Rule 218. As a result, a CEMS application for AQMD source testing staff review and approval is required prior to the installation of the CEMS for each turbine. The NOx CEMS must meet the requirements of Regulation XX and will be discussed under the RECLAIM rules section.

RULE 219 – EQUIPMENT NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II

The cooling tower is exempt from AQMD permit per section (d)(3). The PM10 emissions from the cooling tower were estimated at 39.9 lbs/yr. The natural gas compressor used to compress the natural gas provided by the Gas Company is exempt per section (d)(7). Therefore, applications for this equipment are not required.

RULE 401 - VISIBLE EMISSIONS

This rule limits visible emissions to an opacity of less than 20 percent (Ringlemann No.1), as published by the United States Bureau of Mines. It is unlikely, with the use of the SCR /CO catalyst configuration on natural gas turbines that there will be visible emissions. However, in the unlikely event that visible emissions do occur; anything greater than 20 percent opacity is not expected to last for greater than 3 minutes. During normal operation, no visible emissions are expected. Therefore, based on the above and on experience with other natural gas fired turbines, compliance with this rule is expected.

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. The new turbines are not expected to create a public nuisance based on experience with identical natural gas fired turbines. Therefore, compliance with Rule 402 is expected.

RULE 403 - FUGITIVE DUST

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 17
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

dust emissions. The provisions of this rule apply to any activity or man-made condition capable of generating fugitive dust. This rule prohibits emissions of fugitive dust beyond the property line of the emission source. The installation and operation of the natural gas fired turbines are expected to comply with this rule.

RULE 407 – LIQUID AND GASEOUS AIR CONTAMINANTS

This rule limits CO emissions to 2,000 ppmvd and SO₂ emissions to 500 ppmvd, averaged over 15 minutes. For CO, the natural gas fired turbines will meet the BACT limit of 4.0 ppmvd @ 15% O₂, 1-hr average, and the turbines will be conditioned as such and will be required to verify compliance through CEMS data. For SO₂, equipment which complies with Rule 431.1 is exempt from the SO₂ limit in Rule 407. The applicant will be required to comply with Rule 431.1 and thus the SO₂ limit in Rule 407 will not apply.

RULE 409 – COMBUSTION CONTAMINANTS

This rule restricts the discharge of contaminants from the combustion of fuel to 0.1 grain per cubic foot of gas, calculated to 12% CO₂, averaged over 15 minutes. The equipment is expected to meet this limit based on the calculations shown in table 14.

Table 14 Particulate Matter Concentration in Exhaust Gas

Parameter	Value	Unit	Source
Exhaust Mass Rate (m)	1,066,398	lb/hr	Vendor Data Case #107
Exhaust Molecular Weight (Mw)	28.01	lb/lb-mole	Vendor Data Case #107
Exhaust Gas Temperature (T)	833	°F	Vendor Data Case #107
% Water Content	11.43%		Vendor Data Case #107
% CO ₂ Content	3.29%		Vendor Data Case #107
PM Emission Rate	3.00	lb/hr	Manufacturer guarantee
Exhaust Gas Density (ρ)	0.0296669	lb/ft ³	Calculated ^(a)
Actual Exhaust Flow Rate (Qa)	599,094	acfm	Calculated ^(b)
Standard Dry Exhaust Flow Rate (Qstd)	213,396	scfmd	Calculated ^(c)
Grain Loading corrected to 12% CO ₂ (GL)	0.00598	gr/dscf	Calculated ^(d)

^(a) $\rho = Mw \text{ (lb/lb-mole)} \times \text{Pressure (atm)} \div [(0.7302 \text{ (atm-ft}^3\text{/lb-mole} \cdot \text{°R)}) \times (460 + T^{\circ}\text{F})(^{\circ}\text{R})]$

^(b) $Qa = m \text{ (lb/hr)} \div (\rho \text{ (lb/ft}^3) \times 60 \text{ (min/hr)})$

^(c) $Qstd = Qa \text{ (acfm)} \times [(460+60)/(460+T^{\circ}\text{F})] \times (1 - \% \text{Water content}/100)$

^(d) $GL = PM \text{ rate (lb/hr)} \times 7,000 \text{ (gr/lb)} \div [Qstd \text{ (scfmd)} \times 60 \text{ (min/hr)}] \times 12\% \text{CO}_2 \text{ content}$

As shown in table 14, the grain loading is less than the 0.1 gr/dscf required by Rule 409. Compliance will be verified through source testing.

RULE 431.1-SULFUR CONTENT OF GASEOUS FUELS

The turbines will use pipeline quality natural gas which will comply with the 16 ppm sulfur limit, calculated as H₂S, specified in this rule. Natural gas will be supplied by the Southern California Gas Company which has a H₂S content of less 0.25 gr/100scf, which is equivalent to a concentration of about 4 ppm. It is also much less than the 1 gr/100scf limit typical of pipeline quality natural gas. Compliance is expected. The applicant will comply with the reporting and record keeping requirements as outlined in subdivision (e) of this Rule.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 18
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

RULE 475-ELECTRIC POWER GENERATING EQUIPMENT

This rule applies to power generating equipment greater than 10 MW installed after May 7, 1976. Requirements are that the equipment meet a limit for combustion contaminants of 11 lbs/hr or 0.01 gr/scf. Compliance is achieved if either the mass limit or the concentration limit is met. Emissions from each turbine are estimated at 3.0 lbs/hr and 0.0016 gr/dscf (table 14, 0.00598 gr/dscf x 3.29/12) during natural gas firing at maximum load. Therefore, compliance is expected and will be verified through source testing.

RULE 1134 – EMISSIONS OF OXIDES OF NITROGEN FROM GAS TURBINES

This rule applies to gas turbines, 0.3 MW and larger, installed on or before August 4, 1989. Therefore, as a new installation, the proposed turbines are not subject to this Rule.

RULE 1135 – EMISSIONS OF OXIDES OF NITROGEN FROM ELECTRIC POWER GENERATING SYSTEMS

This rule applies to the electric power generating systems of several of the major utility companies in the basin. The plants which are included in the RECLAIM program are no longer subject to the requirements of this rule. Therefore, the NOx requirements of this rule are not applicable to the proposed turbines.

NEW SOURCE REVIEW (NSR)

The following section describes the NSR analysis for this project and it will be evaluated for compliance with the rules in the table below.

Table 15 Applicable NSR Rules

Applicable NSR Rules for Non-RECLAIM Pollutants (SOx, PM ₁₀ , CO & VOC)	Applicable NSR Rules for RECLAIM Pollutants (NOx)
Rule 1303(a) - BACT	Rule 2005(b)(1)(A) - BACT
Rule 1303(b)(1) - Modeling	Rule 2005(b)(1)(B) - Modeling
Rule 1303(b)(2) - Offsets	Rule 2005(b)(2) - Offsets
Rule 1303(b)(3) - Sensitive Zone Requirements	Rule 2005(e) - Trading Zone Restrictions
Rule 1303(b)(4) - Facilitywide Compliance	Rule 2005(g) - Additional Requirements
Rule 1303(b)(5) - Major Polluting Facilities	Rule 2005(h) - Public Notice
Rule 1703 (a)(2) - BACT for NOx and CO	Rule 2005(i) - Rule 1401 Compliance
	Rule 2005(j) - Compliance with Fed/State NSR

RULE 1303(a), RULE 2005(b)(1)(A) & Rule 1703 (a)(2) – BACT FOR GAS TURBINES

These rules state that the Executive Officer shall deny the Permit to Construct for any new source which results in an emission increase of any non-attainment air contaminant, any ozone depleting compound, or ammonia unless the applicant can demonstrate that BACT is employed for the new source. The addition of the new equipment at this existing facility will result in an increase in emissions; therefore, BACT requirements are applicable.

The BACT limits shown in the table 16 are the most stringent limits from the most recent LM6000 SPRINT™ simple cycle turbines permitted by AQMD for Southern California Edison (AQMD IDs 17104, 51475, 149620 & 51003) - permits to construct for these power plants were issued on 4/3/07.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. .19
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 16 BACT Requirements for Simple Cycle Gas Turbines

Pollutant	BACT	RERC Proposal	Complies?
NO _x	2.5 ppmvd, @ 15% O ₂ , 1-hour average	2.3 ppmvd, @ 15% O ₂ , 1-hour average	Yes
CO	6.0 ppmvd, @ 15% O ₂ , 1-hour average	4.0 ppmvd, @ 15% O ₂ , 1-hour average	Yes
VOC	2.0 ppmvd, @ 15% O ₂ , 1-hour average	2.0 ppmvd, @ 15% O ₂ , 1-hour average	Yes
PM ₁₀ /SO _x	PUC quality natural gas w/ S content ≤ 1 grain/100 scf	PUC quality natural gas w/ H ₂ S content ≤ 0.25 grain/100 scf	Yes
NH ₃	5.0 ppmvd @ 15% O ₂ , 1-hour average	5.0 ppmvd @ 15% O ₂ , 1-hour average	Yes

RERC is proposing to meet BACT and a NO_x CEMS will be used to verify compliance with the NO_x BACT limit and a CO CEMS will be used to verify compliance with the CO BACT limit. The proposed levels in the table above will meet current BACT requirements for all criteria pollutants including NH₃. BACT is satisfied for each of the turbines.

In order to meet the BACT concentration limits for NO_x and CO, as well as VOC, shown in table 16, the CO oxidation catalyst and SCR are required to be in full operation. However, during the start-up phase the turbines are going from a cold/ambient temperature to operating temperatures; therefore, the control system is not effective when the temperatures are less than the minimum temperatures specified in tables 3 & 4.

Water injection commences before the SCR comes online during start-up and during the shutdown phase, water injection ends several minutes after ammonia injection is shut-off. So the water injection allows the emissions to be minimized when the SCR and CO oxidation catalyst have minimum effectiveness. The start-up and shutdown mass emission rates proposed for this project take into account water injection and phased SCR and CO oxidation catalyst control; therefore, the mass emission rates placed on the permit will serve as BACT for start-up and shutdown.

RULE 1303(b)(1) & RULE 2005(b)(1)(B) - MODELING

SCEC, on behalf of RERC, conducted air dispersion modeling using the most recent version of the USEPA model AERMOD (version 07026) as well as the latest versions of the AERMOD preprocessors to determine surface characteristics (AERSURFACE version 08009), to process meteorological data (AERMET version 06341), and to determine receptor slope factors (AERMAP version 06341) to determine compliance with the state and national ambient air quality standards. The most recent five years of Automated Surface Observing Station (ASOS) data was processed for AERMOD from the Riverside airport for years 2000 to 2004 which was downloaded from the National Climatic Data Center (NCDC) website and combined with upper air data from Miramar (also downloaded from the NCDC website) for the same time period. SCEC also used other USEPA models and programs (BPIP-PRIME version 04274 and SCREEN 3 version 96043 for determination of fumigation impacts.

The operational characteristics (stack data at various operating conditions provided by the vendor) of the turbines were examined to determine the worst-case conditions to use in the analysis. The stack characteristics for case no. 107 (full load with the chiller on at an ambient temperature of 100°F) were

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 20
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

used for short term averaging times, start-up, shutdown and commissioning. Case no. 104 (full load with the chiller off at an ambient temperature of 59°F) was used for annual averaging times.

In order to determine the ambient air quality impacts, various plant operating scenarios were examined: normal year of operation, start-up and commissioning operations. For the normal year of operation, the normal operating parameters were used to determine hourly NOx and CO impacts, and 3-hour SO2 impacts. The 8-hour CO impacts were based on two hours of start-ups, two hour of shutdowns, and four hour of normal operations. The 24-hour PM10 impacts reflect 24 hours of normal operation. The annual impacts were based on 1230 hours of operation, including the 150 hours for start-up and 150 hours for shutdown and 10 hours for maintenance. For the start-up analysis, it was assumed that both turbines would start simultaneously. The commissioning analysis was based on the turbines operating at full load and without the SCR and CO oxidation catalyst. The analysis was based on only one turbine being commissioned at a time.

SCEC used USGS Digital Elevation Model (DEM) data using the 10-meter spacing between grid nodes for receptor and source base elevations. Cartesian coordinate receptor grids were used for the surrounding area for the assessment of ground level concentrations. The receptor grids used in the analysis were as follows: downwash grid – 10-meter resolution from the project fenceline and extending 500 meters in all directions; intermediate grid – 50-meter resolution that extends 2 km outwards from the downwash grid; coarse grid – 200-meter resolution that extends outwards from the edge of the intermediate grid to 10 km in all directions. Impacts for 1-hour, 8-hour and 24-hour averaging times were modeled with an additional 10-meter receptor grid referred to as the refined receptor grid.

Table A-2 taken from Rule 1303 lists the most stringent ambient air quality standards and allowable change in concentration for each air contaminant. The appropriate averaging times are also listed.

Table A-2
Most Stringent Ambient Air Quality Standard and
Allowable Change in Concentration
For Each Air Contaminant/Averaging Time Combination

Air Contaminant	Averaging Time	Most Stringent Air Quality Standard		Significant Change in Air Quality Concentration	
Nitrogen Dioxide	1-hour	25 pphm	470 µg/m ³	1 pphm	20 µg/m ³
	Annual	5.3 pphm	100 µg/m ³	0.05 pphm	1 µg/m ³
Carbon Monoxide	1-hour	20 ppm	23 µg/m ³	1 ppm	1.1 µg/m ³
	8-hour	9.0 ppm	10 µg/m ³	0.45 ppm	0.50 µg/m ³
Suspended Particulate Matter <10µm (PM10)	24-hour		50 µg/m ³		2.5 µg/m ³
	Annual Geometric Mean		30 µg/m ³		1 µg/m ³
SO2	24-hour		25 µg/m ³		1 µg/m ³

Pursuant to rule 1303(b)(1) the project must comply with one of the following requirements:

- (a) The most stringent air quality standard shown in Table A-2 above, or
- (b) The significant change in air quality concentration standards shown in Table A-2 above, if the most stringent air quality standards are exceeded

The results of the air dispersion modeling analysis are shown in tables 17 and 18. Table 17 is for the proposed project only and table 18 is for the proposed project with the existing units 1 & 2 in operation.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 21
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 17 Results for Refined Modeling of Proposed Project

Pollutant	Averaging Period	Max. conc. (µg/m3)	Background (µg/m3)	Total (µg/m3)	Class II Significance Level (µg/m3)	Ambient Air Quality	
						CAAQS (µg/m3)	NAAQS (µg/m3)
Normal Operating Conditions							
NO2	1-hour	1.685	172.7	174.4	20	338	-
	Annual	0.036	41.3	41.3	1	56	100
CO	1-hour	4.826	4571.4	4576.2	2,000	23,000	40,000
	8-hour	1.779	3394.3	3396.1	500	10,000	10,000
SO2	1-hour	0.204	52.2	52.4	-	655	-
	3-hour	0.108	41.8	41.9	25	-	1,300
	24-hour	0.033	39.2	39.2	5	105	365
	Annual	0.002	7.8	7.8	1	-	80
PM10	24-hour	0.36	137	137.4	5	50	150
	Annual	0.019	64	64.0	1	20	-
PM10 Turbines only	24-hour	0.359			5		
PM2.5	Annual	0.019			0.75		
	24-hour	0.36	98.7	99.1	-	-	35
	Annual	0.019	22.1	22.1	-	12	15
Start-up/Shutdown							
NO2	1-hour	4.479	172.7	177.2	20	338	-
CO	1-hour	8.504	4571.4	4579.9	2,000	23,000	40,000
	8-hour	2.411	3394.3	3396.7	500	10,000	10,000
Commissioning							
NO2	1-hour	9.985	172.7	182.7	20	338	-
CO	1-hour	19.361	4571.4	4590.8	2,000	23,000	40,000
	8-hour	6.773	3394.3	3401.1	500	10,000	10,000

Table 18 Results for Refined Modeling of Entire Facility

Pollutant	Averaging Period	Max. conc. (µg/m3)	Background (µg/m3)	Total (µg/m3)	Class II Significance Level (µg/m3)	Ambient Air Quality	
						CAAQS (µg/m3)	NAAQS (µg/m3)
Normal Operating Conditions							
NO2	1-hour	20.313	172.7	193.0	20	338	-
	Annual	0.1	41.3	41.4	1	56	100
CO	1-hour	61.845	4571.4	4633.2	2,000	23,000	40,000
	8-hour	3.674	3394.3	3398.0	500	10,000	10,000
SO2	1-hour	0.411	52.2	52.6	-	655	-
	3-hour	0.209	41.8	42.0	25	-	1,300
	24-hour	0.063	39.2	39.3	5	105	365
	Annual	0.004	7.8	7.8	1	-	80
PM10	24-hour	0.725	137	137.7	5	50	150
	Annual	0.04	64	64.0	1	20	-
PM2.5	24-hour	0.725	98.7	99.4	-	-	35
	Annual	0.04	22.1	22.1	-	12	15
Start-up/Shutdown							
NO2	1-hour	20.313	172.7	193.0	20	338	-
CO	1-hour	61.845	4571.4	4633.2	2,000	23,000	40,000
	8-hour	5.038	3394.3	3399.3	500	10,000	10,000
Commissioning							
NO2	1-hour	20.313	172.7	193.0	20	338	-
CO	1-hour	61.845	4571.4	4633.2	2,000	23,000	40,000
	8-hour	8.438	3394.3	3402.7	500	10,000	10,000

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 22
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

The background concentrations for PM10 are higher than the ambient air quality standards. However, the proposed changes in concentrations are lower than the significant changes in concentration level thresholds shown in Table A-2.

AQMD modeling staff reviewed the analyses for both air quality modeling and health risk assessment (HRA) – to be discussed under the Rule 1401 – New Source Review for Toxics section of this evaluation. Modeling staff provided their comments in a memorandum from Mr. Naveen Berry to Mr. Mike Mills dated 9/10/08. A copy of this memorandum is contained in the project file. Staff's review of the modeling and HRA analyses concluded that the applicant used appropriate EPA AERMOD model along with the appropriate model options in the analysis for NO2, CO, PM10, and SO2. The memorandum states that the modeling as performed by the applicant conforms to the District's dispersion modeling requirements. No significant deficiencies in methodology were noted. Therefore compliance with modeling requirements is expected.

RULE 1303(b)(2) & RULE 2005(b)(2) - OFFSETS

RERC is a RECLAIM facility and will be required to offset NOx increases with RECLAIM Trading Credits (RTCs) at a 1 to 1 ratio. The required RTCs for this project are shown in table 19.

Table 19 NOx RTCs Required

Pollutant	Year	Turbine #3	Turbine #4	Total
NOx	Commissioning (1 st yr)	15,043	15,043	30,086
	Non-commissioning (2 nd yr)	6,846	6,846	13,692

For Non-RECLAIM pollutants, the applicability of offsets is based on exceeding the offset thresholds in Table A of Rule 1304(d)(2). Table 20 below summarizes the offset applicability of the project's emissions.

Table 20 Summary of Annual Project Emissions and Offset Applicability

Pollutant	Existing Facility Emissions ^(a)	Turbines 3&4 Com. Yr. ^(b)	Turbines 3&4 Normal Year ^(c)	Grand Total Com. Yr. ^(d)	Grand Total Non-Com. Yr. ^(e)	Offset Threshold	Offsets Triggered?
NOx	18,397	30,087	13,692	49,002	32,607	n/a	n/a
SOx	710	770	770	1,480	1,480	8,000	No
PM10	7,806	7,380	7,380	15,188	15,188	8,000	Yes
CO	21,644	32,474	15,768	54,118	37,412	n/a	n/a
ROG	2,973	3,998	3,244	6,981	6,227	8,000	No

^(a) Emissions from existing turbines 1 & 2

^(b) Total of commissioning year emissions for turbines 3 & 4

^(c) Total of normal (non-commissioning) year emissions for turbines 3 & 4

^(d) Existing Facility Emissions + Turbines 3 & 4 (Commissioning Year)

^(e) Existing Facility Emissions + Turbines 3 & 4 (Normal Year)

Table 20 shows that the project exceeds the offset exemption threshold for PM10. As a result, Emission Reduction Credits (ERC) are required for PM10. In addition, as discussed in the background section, the permit moratorium suspended the AQMD's internal credit bank normally reserved for essential public services and for projects that meet the exemptions pursuant to Rule 1304. RERC is exempt from offset requirements for SOx and ROG (the basin is in attainment for CO; therefore, offset

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 23
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

requirements are not applicable to this pollutant), per Rule 1304(d) – small sources less than 4 tons per year threshold – the moratorium requires that external credits be provided for these pollutants as well.

Table 21 summarizes the 30 day average emissions taken from the calculation section of this evaluation and the applicable amount of ERC required. The table shows the 30 day average emissions for both commissioning and subsequent non-commissioning operations.

Table 21 Project ERCs Required

Pollutant	Year	Turbine #3 30-Day Average	Turbine #4 30-Day Average	Total 30-Day Emissions	Total Credits Required ^(a)
PM10	Commissioning (1 st yr)	15.00	15.00	30.00	36
	Non-commissioning (2 nd yr)	15.00	15.00	30.00	36
ROG	Commissioning (1 st yr)	15.70	15.70	31.40	38
	Non-commissioning (2 nd yr)	7.17	7.17	14.34	17
SOx	Commissioning (1 st yr)	1.56	1.56	3.12	4
	Non-commissioning (2 nd yr)	1.56	1.56	3.12	4

^(a) The total amount of Emission Reduction Credits to be surrendered is based on the two new turbines operating simultaneously and at maximum load, calculated as 30-Day Emissions x 1.2 offset ratio.

The emissions and the amount of required ERC are the same for both commissioning and non-commissioning for PM10 and SOx. **RERC surrendered 36 lbs of PM10 and 4 lbs of SOx.**

The VOC emissions during commissioning phase were calculated based on uncontrolled operation at full load for the entire month – assuming a worst case uncontrolled emission factor of 5 ppmvd. However, RERC will be installing the oxidation catalyst shortly after installation of the turbine and has agreed to remain below a monthly cap for each turbine to comply with the offset requirements. **RERC has surrendered 19 lbs of ROG credits,** 2 additional pounds of credits above what would be required for normal operation. The 19 lbs of ERC equates to 235 pounds per month per turbine. RERC would be required to commission each turbine in accordance with the following formula:

$$X \times 6.72 \text{ lb/MMscf} + (Y \times 1.49 \text{ lbs/start} + Z \times 1.41 \text{ lbs/shutdown}) + W \times 2.69 \text{ lb/MMscf} < 235 \text{ lbs}$$

Where,

X = monthly natural gas usage **before** the installation of the oxidation catalyst

Y = number of start-ups per month (counted after installation of oxidation catalyst)

Z = number of shutdowns per month (counted after installation of oxidation catalyst)

W = monthly natural gas usage **after** the installation of the oxidation catalyst

In addition, each turbine has a monthly cap on fuel use and number of start-ups/shutdowns allowed

X + W < 70 MMscf

Y < 20 start-ups per month

Z < 20 shutdowns per month

Conditions will be placed on the permit to ensure compliance with the offset requirements during all phases of operation.

Table 22 shows the total amount of ERCs and STERCs purchased by RERC as of 1/23/09. The certificates will be surrendered to the District to offset the installation of the two new turbines.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING & COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

PAGES
46

PAGE NO.
24

APPL. NO.
481647 (master)

DATE
2/20/2009

PROCESSED BY
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Table 22 Total Amount of ERCs and STERCs currently held by RERC

Pollutant	Certificate No.	Origin	Seller	Amount (lb/day)	Year
PM-10	AQ000218	Spectra Tone Paint		2	6/3/91 and all subsequent years
	AQ007850	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2008
	AQ007851	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2009
	AQ007852	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2010
	AQ007853	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2011
	AQ007854	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2012
	AQ007855	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2013
	AQ007856	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2014
	AQ007857	Olduvai Gorge, LLC	Olduvai Gorge, LLC	20	2015 and all subsequent years
	AQ007813	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2008
	AQ007814	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2009
	AQ007815	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2010
	AQ007816	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2011
	AQ007817	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2012
	AQ007818	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2013
	AQ007819	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2014
	AQ007820	Olduvai Gorge, LLC	Olduvai Gorge, LLC	7	2015 and all subsequent years
	AQ006800	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2008
	AQ006802	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2009
	AQ006804	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2010
AQ006806	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2011	
AQ006808	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2012	
AQ006810	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2013	
AQ006812	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	7	2014 and all subsequent years	
SOx	AQ007310	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	1	2009
	AQ007314	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	1	2010
	AQ007298	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	1	2011
	AQ007318	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	1	2012
	AQ007322	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	1	2013
	AQ007326	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	1	2014 and all subsequent years
	AQ007917	Grey K Environmental Fund, LP	Grey K Environmental Fund, LP	3	6/12/2008
ROG	AQ007615	Grey K Fund LP	Grey K Fund LP	9	3/4/2008
	AQ008442	National Offsets	National Offsets	8	2009
	AQ008443	National Offsets	National Offsets	8	2010
	AQ008444	National Offsets	National Offsets	8	2011
	AQ008445	National Offsets	National Offsets	8	2012
	AQ008446	National Offsets	National Offsets	8	2013
	AQ008447	National Offsets	National Offsets	8	2014
	AQ008448	National Offsets	National Offsets	8	2015 and all subsequent years
	AQ006161-09-0396	National Offsets	National Offsets	2	2009
	AQ006161-10-0397	National Offsets	National Offsets	2	2010

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 25
	APPL. NO. 481647 (master)	DATE - 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

AQ006161-11-0398	National Offsets	National Offsets	2	2011
AQ006161-12-0399	National Offsets	National Offsets	2	2012
AQ006161-LT-0400	National Offsets	National Offsets	2	2014 and all subsequent years

Table 22 confirms that RERC will surrender 36 lb-PM10/day, 19 lb-ROG/day and 4 lb-SOx/day. To ensure compliance with offsets, monthly fuel usage limits will be placed on the permit as well as monthly emission limits.

RULES 1303(b)(3) – SENSITIVE ZONE REQUIREMENTS & 2005(e) – TRADING ZONE RESTRICTIONS

Both rules state that credits must be obtained from the appropriate trading zone. In the case of Rule 1303(b)(3), unless credits are obtained from the Priority Reserve, facilities located in the South Coast Air Basin are subject to the Sensitive Zone requirements specified in Health & Safety Code Section 40410.5. The RERC facility is located in Riverside (zone 2A) and is therefore eligible to obtain its ERCs from either Zone 1 or Zone 2a. Similarly in the case of Rule 2005(e), because of the facility location, RTCs from either Zone 1 or Zone 2, may be acquired. Compliance is expected with both rules.

RULE 1303(b)(4) – FACILITY COMPLIANCE

RPU has submitted documentation stating that the RERC facility is in compliance with all applicable Rules and Regulations of the AQMD.

RULE 1303(b)(5) – MAJOR POLLUTING FACILITIES

RULE 1303(b)(5)(A) – ALTERNATIVE ANALYSIS

The applicant is required to conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for the facility and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. RERC has performed a comparative evaluation of alternative sites as part of the SPPE process (see SPPE application package in project file) and has determined that expanding the current facility is the best option as opposed to developing other sites.

RULE 1303(b)(5)(B) – STATEWIDE COMPLIANCE

RPU has submitted documentation, dated 7/8/08 that “any and all facilities that RPU owns or operates in the State of California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

RULE 1303(b)(5)(C) – PROTECTION OF VISIBILITY

Modeling analysis for plume visibility in accordance with Appendix B of Rule 1303 is required if the net increase in emissions from the new or modified source exceeds 15 tons per year of PM10 or 40 tons per year of NOx (NOx is covered under Rule 2005(g)(4)) and if it is within the distance specified in Table C-1, of the rule, from a specified Federal Class I area. The increase of 3.69 tons of PM10 per year is less than the thresholds of this section; therefore, no further analysis is required.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 26
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

RULE 1303(b)(5)(D) – COMPLIANCE THROUGH CEQA

The CEC's SPPE process is equivalent to CEQA, with the CEC acting as the Lead Agency. Since the applicant is required to receive a Commission decision on whether to grant small power plant exemption, the applicable CEQA requirements and deficiencies will be addressed. Compliance is expected.

RULE 1401 – NEW SOURCE REVIEW OF TOXIC AIR CONTAMINANTS

This rule is applicable to applications deemed complete on or after June 1, 1990 and it imposes specific limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard indices from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants (TAC) listed in Table I of Rule 1401. The rule establishes allowable risks for permit units requiring new permit pursuant to Rules 201 or 203. The proposed gas turbines and associated control equipment is a new construction and an increase in TAC emissions, thus Rule 1401 applies to this project.

SCEC performed a Tier 4 health risk assessment (HRA) using the Hot Spots Analysis and Reporting Program (HARP) distributed by the California Air Resources Board (CARB). The model is a multiple pollutant, multiple pathway health risk program that uses calculation procedures set forth in CARB and CAPCOA guidelines and it works with a facility information database, an integrated ICST3 air dispersion model, and a health risk assessment model. The health risk analysis procedures are summarized below:

FACILITY INFORMATION DATABASE

The first step in the health risk assessment procedure is to accurately collect the necessary facility information that needs to be entered into the HARP model – facility and process descriptions, building and stack dimensions, exhaust characteristics, UTM coordinates of relevant facility structures, and property boundary information. As discussed under the modeling section, worst case stack and exhaust data were used for dispersion modeling.

The TAC emission rates that were entered into HARP are shown in table 23 for a single turbine. The estimates are based on maximum load operating for 1,230 hours per year. A control efficiency of 85% was assumed to occur over the oxidation catalyst for all pollutants, except for ammonia and PAH compounds.

Table 23 Toxic Air Contaminant Emissions

TAC ^(a)	EF (lb/MMBtu)	Control Efficiency (%) ^(b)	Heat Input		Emissions per Turbine	
			MMBtu/hr	MMBtu/yr ^(c)	lb/hr	lb/yr
Acetaldehyde	4.00E-05	85%	490.35	603,130.50	2.94E-03	3.62E+00
Acrolein	6.40E-06	85%	491.35	604,360.50	4.72E-04	5.80E-01
Ammonia	-	-	492.35	605,590.50	3.33E+00	4.10E+03
Benzene	1.20E-05	85%	493.35	606,820.50	8.88E-04	1.09E+00
Butadiene (1,3-)	4.30E-07	85%	494.35	608,050.50	3.19E-05	3.92E-02
Ethylbenzene	3.20E-05	85%	495.35	609,280.50	2.38E-03	2.92E+00
Formaldehyde	7.10E-04	85%	496.35	610,510.50	5.29E-02	6.50E+01
PAH						
Benzo(a)anthracene	2.22E-08	-	498.35	612,970.50	1.11E-05	1.36E-02
Benzo(a)pyrene	1.36E-08	-	499.35	614,200.50	6.79E-06	8.35E-03
Benzo(b)fluoranthene	1.11E-08	-	500.35	615,430.50	5.55E-06	6.83E-03

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 27
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Benzo(k)fluoranthene	1.08E-08	-	501.35	616,660.50	5.41E-06	6.66E-03
Chrysene	2.47E-08	-	502.35	617,890.50	1.24E-05	1.53E-02
Dibenz(a,h)anthracene	2.30E-08	-	503.35	619,120.50	1.16E-05	1.42E-02
Indeno(1,2,3-cd)pyrene	2.30E-08	-	504.35	620,350.50	1.16E-05	1.43E-02
Naphthalene	1.63E-06	-	505.35	621,580.50	8.24E-04	1.01E+00
Propylene Oxide	2.90E-05	85%	506.35	622,810.50	2.20E-03	2.71E+00
Toluene	1.30E-04	85%	498.35	612,970.50	9.72E-03	1.20E+01
Xylene	6.40E-05	85%	499.35	614,200.50	4.79E-03	5.90E+00

^(a) TAC emission factors are from AP-42 Section 3.1, except for PAH compounds which are based on the mean values taken from the California Air Toxics Emission Factors (CATEF) Database. Ammonia emissions are based on permitted levels from units 1 & 2.

^(b) Control efficiency based on EPA memorandum on the reduction of hazardous air pollutants across oxidation catalysts.

^(c) Annual heat input based on 1,230 annual operating hours.

AIR DISPERSION MODELING

The Industrial Source Complex Short Term 3 (ISCST3) air dispersion model integrated into HARP was used to evaluate the pollutant dispersion. The ISCST3 is a steady state Gaussian Plume model that is recommended by the USEPA as well as AQMD for stationary source air dispersion modeling projects. Meteorological data was based on the Riverside Meteorological Station for the ISCST3 runs. Building dimensions from facility plot plans were inputted and evaluated in ISCST3 and Building Profile Input Program (BPIP) for building wake effects. Standard regulatory default options were used with the exception of calm processing, as required by AQMD. The model was also run in rural mode in accordance with ISCST3 guidelines in the complex terrain mode with appropriate receptor elevations. The receptor grid consisted of a uniform Cartesian coordinate system, which extended approximately 4,000 meters in the north-south direction and 4,000 meters in the east-west direction with 100 meter increments, which was used to determine the risk at the point of maximum impact (PMI).

HEALTH RISK ASSESSMENT

The health risk model contained in the HARP software performed the risk assessment calculations to verify compliance with Rule 1401 MICR, cancer burden, and non-cancer acute and chronic hazard indices, which are further defined below:

MAXIMUM INDIVIDUAL CANCER RISK (MICR)

The probability of a potential maximally exposed individual contracting cancer as a result of exposure to TAC over a period of 70 years for residential and 40 years for worker receptor locations. The MICR calculations include all multi-pathway considerations.

CANCER BURDEN

The estimated increase in the occurrence in cancer cases in a population subject to a MICR greater than or equal to one in a million resulting from exposure to TAC.

ACUTE HAZARD INDEX (HIA)

The ratio of the estimated maximum one-hour concentration of a TAC for a potentially maximally exposed individual to its acute reference exposure level.

CHRONIC HAZARD INDEX (HIC)

The ratio of the estimated long-term level of exposure to a TAC for a potentially maximally exposed individual to its chronic reference exposure level.

The requirements shown in table 24 must be met for the affected equipment to demonstrate compliance with the rule and prior to the issuance of a Permit to Construct.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 28
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Table 24 Rule 1401 Requirements

Parameters and Specifications	Rule 1401 Requirements
MICR, without T-BACT	$\leq 1 \times 10^{-6}$
MICR, with T-BACT	$\leq 10 \times 10^{-6}$
HIA	≤ 1.0
HIC	≤ 1.0
Cancer Burden	≤ 0.5

The health risk model in HARP was run with standard CARB options that are based on analyses derived from the California Office of Environmental Health Hazard Assessment (OEHHA) methods. The results were generated in tabular and isopleth contour plots shown in the project file. The results of the HRA are shown in table 25.

Table 25 Rule 1401 Modeled Results

Scenario	Cancer Risk	Chronic Risk	Acute Risk	Cancer Burden
Normal Operations				
PMI	1.06E-07	0.002	0.085	0.00001
Workplace PMI	6.87E-09	0.002	0.085	
Nearest resident	7.30E-12	1.12E-07	2.02E-05	
Commissioning				
Acute PMI			0.442	

AQMD staff reviewed the methodology and procedures of the modeling runs submitted by SCEC and it was determined that the results shown in table 25 were appropriately estimated. Please refer to internal memorandum in the project file from Mr. Naveen Berry to Mr. Michael Mills dated 9/10/08. Therefore, compliance with Rule 1401 is expected.

RULE 2005(g) – ADDITIONAL REQUIREMENTS

As with Rule 1303(b)(5) for the Non-RECLAIM pollutants, RERC has addressed the alternative analysis, statewide compliance, protection of visibility, and CEQA compliance requirements of this rule for NO_x. These requirements are essentially the same as those found in Rule 1303(b)(5), subparts A through D for non-RECLAIM pollutants, and are summarized below.

RULE 2005(g)(1) – STATEWIDE COMPLIANCE

RPU has submitted documentation, dated 7/8/08 that “any and all facilities that RPU owns or operates in the State of California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

RULE 2005(g)(2) – ALTERNATIVE ANALYSIS

The applicant is required to conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for the facility and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. RERC has performed a comparative evaluation of alternative sites as part of the SSPE process (see SPPE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 29
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

application package in project file) and has determined that expanding the current facility is the best option as opposed to developing other sites.

RULE 2005(g)(3) – COMPLIANCE THROUGH CEQA

The CEC's SPPE process is equivalent to CEQA, with the CEC acting as the Lead Agency. Since the applicant is required to receive a Commission decision on whether to grant small power plant exemption, the applicable CEQA requirements and deficiencies will be addressed. Compliance is expected.

RULE 2005(g)(4) – PROTECTION OF VISIBILITY

Modeling analysis for plume visibility in accordance with Appendix B of Rule 2005 is required if the net increase in emissions from the new or modified source exceeds 40 tons per year of NOx and if it is within the distance specified in Table C-1, of the rule, from a specified Federal Class I area. The increase of 15.04 tons of NOx for the commissioning year are less than the thresholds of this section; therefore, no further analysis is required.

RULE 2005(h) – PUBLIC NOTICE

RERC will comply with the requirements for Public Notice found in Rule 212. Therefore compliance with Rule 2005(h) is demonstrated.

RULE 2005(i) – RULE 1401 COMPLIANCE

RERC will comply with Rule 1401 as demonstrated in the Tier 4 analysis and subsequently reviewed and found to be satisfactory by AQMD modeling staff. Compliance is expected.

RULE 2005(j) – COMPLIANCE WITH STATE AND FEDERAL NSR

RERC will comply with the provisions of this rule by having demonstrated compliance with AQMD NSR Regulations XIII and Rule 2005-NSR for RECLAIM.

RULE 2012 – RECLAIM, MONITORING, REPORTING, & RECORDKEEPING REQUIREMENTS

The turbines will be classified as major NOx sources under RECLAIM. As such, they are required to measure and record NOx concentrations and calculate mass NOx emissions with a Continuous Emissions Monitoring System (CEMS). The CEMS will include in-stack NOx and O2 analyzers, a fuel meter, and a data recording and handling system. NOx emissions are reported to AQMD on a daily basis. The CEMS system will be required to be installed within 90 days of start up. Compliance is expected.

INTERIM PERIOD EMISSION FACTORS

RECLAIM requires a NOx emission factor to be used for reporting emissions during the interim reporting period. The interim period is defined as a period, of no greater than 12 months from initial operation, when the CEMS has not been certified. During this period, the emissions cannot be accurately, monitored, or verified. The emissions during this period are assumed to be at uncontrolled levels. The interim reporting period can be broken down into the two parts which includes the commissioning period in which an uncontrolled emission rate is assumed. The emission factor for the commissioning period is based on the entire 200 hour period. The remaining period is based on BACT emission rates.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 30
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

Since RERC is included in NO_x RECLAIM, an interim period emission factor will be determined. In the event CEMS data is not available, NO_x emissions during the interim period will be calculated using monthly fuel usage and the emission factors derived below. There will be two interim period emission factors calculated for NO_x.

The first factor will be for use during commissioning stage when the turbines are assumed to be operating at uncontrolled levels and the second factor will be for use after commissioning is complete and BACT emission rates have been achieved. The emission factors are shown in tables 26 and 27 are based on the values taken from table 10 in the calculations section.

Table 26 Emission Factors for Commissioning Period

Pollutant	NO _x	CO	ROG
Total emissions (lbs)	9,028	9,232	628
Total Fuel (MMscf)	93.4	93.4	93.4
Emission Factor (lb/MMscf)	96.66	98.84	6.72

Table 27 Emission Factors for Remaining Period

Pollutant	NO _x	CO	ROG
Total emissions (lbs)	6,015	7,005	1,370
Total Fuel (MMscf)	481.0	481.0	481.0
Emission Factor (lb/MMscf)	12.50	14.56	2.85

REGULATION XVII – PREVENTION OF SIGNIFICANT DETERIORATION

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. Rule 1701(b) establishes the following applicability of this regulation:

- Any new source or modification to an existing source where the emission increase is 100 or 250 tons per year (depending on source category), or
- Any significant emissions increase at an existing major stationary source, or
- Any net emission increase at a major stationary source located within 10 km of a Class I area.

Rule 1702(m)(1) identifies the source categories subject to prevention of significant deterioration (PSD) and any facility identified as such that has an emission rate of 100 tons per year or more of any contaminant regulated by this act is considered a major stationary source. The simple cycle gas fired turbines are not listed in this section and therefore fall into section (m)(2); unlisted sources that have a potential to emit 250 tons per year of any contaminant. However, the emissions from the project will not exceed this threshold; therefore, PSD analysis will not be required.

Rule 1703(a)(2) requires BACT for any net emission increase at any stationary source. As discussed under the NSR section, BACT will be achieved for all pollutants. Compliance is expected.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

RERC filed an Application for SPPE (Docket 08-SPPE-1) with the CEC for the project on 3/19/08. As a result, the CEC will be the lead agency on this project. Under the SPPE process, the CEC may exempt thermal power plants with a generating capacity not exceeding 100 MW from traditional CEC licensing procedures if the project has no substantial adverse impact on the environment or energy

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 31
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

resources. The CEC determined on 6/5/08 that the project could still be considered under the SPPE process, taking into account that the addition of units 3 & 4 will add an additional 96 MW to the existing 95 MW. They determined that there was no way the City of Riverside could predict when additional capacity was warranted back when the City applied for a SPPE for units 1 & 2 in 2004.

The CEC coordinates its review of the project with the federal, state, and local agencies that will be issuing permits to ensure that its SPPE incorporates the conditions that would be required by these various agencies. The SPPE process is the functional equivalent of a traditional CEQA review and will address and resolve issues related to CEQA. Following public review and participation, a Mitigated Negative Declaration (MND) is prepared for the project.

40CFR PART 60 SUBPART KKKK - NSPS FOR STATIONARY GAS TURBINES

Each turbine is subject to Subpart KKKK because the heat input is greater than 10.7 gigajoules per hour (10.14 MMBtu per hour) at peak load, based on the higher heating value of the fuel fired. The standards applicable for a turbine firing natural gas with a heat input at peak load >50 MMBtu/hr and ≤850 MMBtu/hr are as follows:

- NOx: 25 ppm at 15% O2 or 1.2 lb/MW-hr
- SO2: 0.90 lbs/MW-hr discharge, or 0.060 lbs/MMBtu potential SO2 in the fuel

The proposed NOx limit will be 2.3 ppmv and should comply with concentration limit of this Rule.

$$SO_2 = 0.31 \text{ lb/hr} / 49.8 \text{ MW} = 0.0062 \text{ lb/MW-hr}$$

The SO2 emissions of 0.0062 lb/MW-hr are below the emissions limits of this Rule

MONITORING

The regulation requires that the fuel consumption and water to fuel ratio be monitored and recorded on a continuous basis, or alternatively, that a NOx and O2 CEMS be installed. For the SO2 requirement, either a fuel meter to measure input, or a watt-meter to measure output is required, depending on which limit is selected. Also, daily monitoring of the sulfur content of the fuel is required if the fuel limit is selected. However, if the operator can provide supplier data showing the sulfur content of the fuel is less than 20 grains/100scf (for natural gas), then daily fuel monitoring is not required.

The turbines will be required to install CEMS to comply with RECLAIM requirements for NOx Major Sources. Therefore, NOx monitoring requirements are satisfied. The turbines will fire natural gas provided by the Southern California Gas Company which contains less than 1 grains-sulfur/100scf. Daily monitoring will not required for fuel sulfur content.

TESTING

An initial performance test is required for both NOx and SO2. For units with a NOx CEMS, a minimum of 9 RATA reference method runs is required at an operating load of +/- 25 percent of 100 percent load. For SO2, either a fuel sample methodology or a stack measurement can be used, depending on the chosen limit. Annual performance tests are also required for NOx and SO2.

Compliance with the requirements of this rule is expected.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 32
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

40CFR PART 63 SUBPART YYYYY - NESHAPS FOR STATIONARY GAS TURBINES

This regulation applies to gas turbines located at major sources of HAP emissions. Per this subpart, a major source is defined as a facility with emissions of 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of a combination of HAPs. The largest single HAP emission is formaldehyde which is approximately 264 lb/yr (0.132 tpy) for the entire facility with the addition of the new units. The total combined HAPs from the entire facility is 382 lb/yr (0.191 tpy) - ammonia is not defined as an HAP pollutant per this Rule. Therefore, the RERC facility is not a major source, per this subpart, and the requirements of this regulation do not apply.

40 CFR PART 64 – COMPLIANCE ASSURANCE MONITORING

The CAM regulation applies to each pollutant specific emissions unit (PSEU) at major stationary sources required to obtain a Title V permit, which use control equipment to achieve a specified emission limit. The rule is intended to provide “reasonable assurance” that the control systems are operating properly to maintain compliance with the emission limits.

CAM applicability is based on specific criteria; the PSEU must:

- be subject to an emission limitation or standard, and
- use a control device to achieve compliance, and
- have **potential pre-control** emissions that exceed or are equivalent to the major source threshold.

Only NOx and CO meet the criteria above for CAM applicability. Therefore, CAM requirements apply to these pollutants.

NOx

- Emission Limit – NOx is subject to a 2.3 ppm 1 hour BACT limit.
- Control Equipment – NOx is controlled with the SCR
- Requirement - As a NOx Major Source under Reclaim, the turbines are required to have CEMS under Rule 2012. The use of a continuous monitor to show compliance with an emission limit is exempt from CAM under 64.2(b)(vi).

CO

- Emission Limit – CO is subject to a 4.0 ppm 1 hour BACT limit.
- Control Equipment – CO is controlled with the oxidation catalyst.
- Requirement – The turbines will be required to use a CO CEMS under Rule 218. The use of a continuous monitor to show compliance with an emission limit is exempt from CAM under 64.2(b)(vi).

The project will comply with the requirements of this regulation.

40 CFR PART 72 – ACID RAIN PROVISIONS

The RERC facility is subject to the requirements of the federal Acid Rain program. The program is similar in concept to RECLAIM in that facilities are required to cover SO2 emissions with SO2 allowances; analogous to NOx RTCs. SO2 allowances are however, not required in any year when the unit emits less than 1,000 lbs of SO2. Facilities with insufficient allowances are required to purchase SO2 credits on the open market. In addition, both NOx and SO2 emissions will be monitored and reported directly to USEPA. Appropriate conditions are in Appendix B of the Title V permit. RERC is expected to comply with this regulation.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 33
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

REGULATION XXX – TITLE V

The existing RERC facility has a Title V permit as a result of the applicability of federal Acid Rain provisions. Per Rule 3000(b)(28), the addition of the new units will result in a Significant Permit Revision and a public notice in accordance with Rule 3006(a) will be required before any permit action. The notice will be sent out along with the Rule 212(g) notice discussed under the Rule 212 section. EPA is afforded the opportunity to review and comment on the project within a 45-day review period.

RECOMMENDATION(S)

Following the public notice, issue a Facility Permit to Construct with the following permit conditions.

PERMIT CONDITIONS

FACILITY PERMIT 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, 11-09-2001]

GAS TURBINES (DEVICES D16 & D22)

A63.3 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
PM ₁₀	Less than 450 LBS IN ANY ONE MONTH
CO	Less than 1,352 LBS IN ANY ONE MONTH
SO _x	Less than 47 LBS IN ANY ONE MONTH
VOC	Less than 215 LBS IN ANY ONE MONTH

For the purposes of this condition, the limit(s) shall be based on the emissions from a single turbine.

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM₁₀: 6.42 lbs/MMscf, and SO_x: 0.67 lbs/MMscf.

Compliance with CO emissions limits shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the following factors – 9.41 lbs/MMscf during normal operations and 11.60 lbs/start-up and 10.92 lbs/shutdown.

VOC emissions shall be calculated using fuel usage and the following factors – 2.69 lbs/MMscf during normal operations and 1.49 lb/start-up and 1.41 lb/shutdown.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 34
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

[Rule 1303(b)(2) – Offset]

A63.4 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
PM ₁₀	Less than 7,380 LBS IN ANY ONE YEAR
CO	Less than 15,768 LBS IN ANY ONE YEAR
SO _x	Less than 770 LBS IN ANY ONE YEAR
VOC	Less than 3,244 LBS IN ANY ONE YEAR

For the purposes of this condition, limit(s) shall be based on the combined emissions from both turbines.

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM10: 6.42 lb/MMscf, and SO_x: 0.67 lb/MMscf.

Compliance with CO emissions limits shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the following factors – 9.41 lb/MMscf during normal operations and 11.60 lbs/start-up and 10.92 lbs/shutdown.

VOC emissions shall be calculated using fuel usage and the following factors – 2.69 lbs/MMscf during normal operations and 1.49 lb/start-up and 1.41 lb/shutdown.

The CO emissions shall not exceed 32,474 lbs during a commissioning year and the VOC emissions shall not exceed 3,998 lbs during a commissioning year. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the factor of 98.84 lbs/MMscf. VOC emissions shall be calculated using fuel usage and the factor of 6.72 lbs/MMscf for turbine operation prior to the installation of the CO oxidation catalyst.

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

For the purposes of this condition, the yearly emission limit shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.

[Rule 1303(b)(1) – Modeling]

A63.5 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
PM ₁₀	Less than 450 LBS IN ANY ONE MONTH
CO	Less than 6,924 LBS IN ANY ONE MONTH
SO _x	Less than 47 LBS IN ANY ONE MONTH
VOC	Less than 235 LBS IN ANY ONE MONTH

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 35
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

For the purposes of this condition, the limit(s) shall be based on the emissions from a single turbine during a commissioning month, which shall be defined as the month(s) in which the turbine is first installed and commences initial firing and operation to the time that the oxidation catalyst, SCR catalyst, ammonia injection system, and NOx analyzer have been installed and the turbine is ready to supply electrical energy to the power grid. The commissioning period shall not exceed 200 hours.

The turbines shall not operate concurrently until at least one of the two turbines has installed the oxidation catalyst, SCR catalyst, ammonia injection system, and NOx analyzer.

For the purposes of this condition, the maximum number of start-ups during the commissioning month shall not exceed 20 start-ups. The number of start-ups shall begin to be counted and recorded following the installation of the oxidation catalyst.

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM10: 6.42 lbs/MMscf, and SOx: 0.67 lbs/MMscf.

Compliance with CO emissions limits shall be verified through CEMS data. If CO CEMS data is not available, CO emissions shall be calculated using fuel usage and the following factors – 9.41 lbs/MMscf during normal operations and 11.60 lbs/start-up and 10.92 lbs/shutdown. For operation during commissioning, CO emissions shall be calculated using fuel usage and the factor of 98.84 lbs/MMscf.

VOC emissions shall be calculated using fuel usage and the following factors – 2.69 lbs/MMscf during normal operations and 1.49 lb/start-up and 1.41 lb/shutdown. For operation prior to the installation of the oxidation catalyst, VOC emissions shall be calculated using fuel usage and the factor of 6.72 lbs/MMscf.

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

The District shall be notified in writing once the commissioning process has been completed for each turbine. The notification to the District shall include data and relevant information that demonstrates compliance with this condition.

[Rule 1303(b)(2) – Offset]

A99.4 The 2.3 PPM NOx emission limit(s) shall not apply during turbine commissioning, start-up, shutdown, and maintenance periods. Start-up time shall not exceed 35 minutes for each start-up. Shutdown periods shall not exceed 10 minutes for each shutdown. The turbine shall be limited to a maximum of 20 start-ups per month and 150 start-ups per year. Maintenance shall not exceed 10 hours per year. Written records of commissioning, start-ups, shutdowns and maintenance shall be maintained and made available to the Executive Officer upon request.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 36
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

For the purposes of this condition, start-up shall be defined as the start up process to bring the turbine and the SCR and ammonia injection system to full successful operation. If during start-up the process is aborted and the start-up is restarted, then the start-up and restart is defined as "one start-up". In this case the start-up time shall not exceed 35 minutes.

For the purposes of this condition, shutdown shall be defined as a reduction in turbine load ending in a period of zero fuel flow.

For the purposes of this condition, maintenance shall be defined as optimizing and re-balancing of the NH3 grid or catalyst modules, and the retuning of the turbine control systems.

The commissioning period shall not exceed 200 hours.
[Rule 2005, Rule 1703(a)(2) – PSD BACT]

A99.5 The 4.0 PPM CO emission limit(s) shall not apply during turbine commissioning, start-up, shutdown, and maintenance periods. Start-up time shall not exceed 35 minutes for each start-up. Shutdown periods shall not exceed 10 minutes for each shutdown. The turbine shall be limited to a maximum of 20 start-ups per month and 150 start-ups per year. Maintenance shall not exceed 10 hours per year. Written records of commissioning, start-ups, shutdowns and maintenance shall be maintained and made available to the Executive Officer upon request.

For the purposes of this condition, start-up shall be defined as the start up process to bring the turbine and the SCR and ammonia injection system to full-successful operation. If during start-up the process is aborted and the start-up is restarted, then the start-up and restart is defined as "one start-up". In this case the start-up time shall not exceed 35 minutes.

For the purposes of this condition, shutdown shall be defined as a reduction in turbine load ending in a period of zero fuel flow.

For the purposes of this condition, maintenance shall be defined as optimizing and re-balancing of the NH3 grid or catalyst modules, and the retuning of the turbine control systems.

The commissioning period shall not exceed 200 hours.
[Rule 1703(a)(2) – PSD BACT]

99.6 The 96.66 LBS/MMCF NOx emission limit(s) shall only apply during the interim reporting period during initial turbine commissioning to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.
[Rule 2012]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 37
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

- A99.7 The 12.50 LBS/MMCF NO_x emission limit(s) shall only apply during the interim reporting period after initial turbine commissioning to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.
[Rule 2012]
- A195.4 The 2.0 PPMV VOC emission limit(s) is averaged over 60 minutes at 15 percent O₂, dry.
[Rule 1303(a) – BACT]
- A195.5 The 4.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O₂, dry.
[Rule 1703(a)(2) – PSD BACT]
- A195.6 The 2.3 PPMV NO_x emission limit(s) is averaged over 60 minutes at 15 percent O₂, dry.
[Rule 2005, Rule 1703(a)(2) – PSD BACT]
- A327.1 For the purpose of determining compliance with District Rule 475, combustion contaminants emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.
[Rule 475]
- A433.1 The operator shall comply at all times with the 2.3 ppm 1-hour BACT limit for NO_x, except as defined in condition A99.4 and for the following scenarios:

Operating Scenario	Maximum Limit	Operational Limit
Start-up	11.02 lb	The mass emission limit is determined over a 60 consecutive rolling minutes
Shutdown	6.14 lb	The mass emission limit is determined over a 60 consecutive rolling minutes

Records of minute by minute start-up and shutdown data shall be maintained and made available to the Executive Officer upon request.
[Rule 2005, Rule 1703(a)(2) - PSD BACT]

- A433.2 The operator shall comply at all times with the 4.0 ppm 1-hour BACT limit for CO, except as defined in condition A99.5 and for the following scenarios:

Operating Scenario	Maximum Limit	Operational Limit
Start-up	11.60 lb	The mass emission limit is determined over a 60 consecutive rolling minutes
Shutdown	10.92 lb	The mass emission limit is determined over a 60 consecutive rolling minutes

Records of minute by minute start-up and shutdown data shall be maintained and made available to the Executive Officer upon request.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 38
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

[Rule 1703(b)(1) - PSD BACT]

C1.3 The operator shall limit the fuel usage to no more than 70 MMscf in any one calendar month.

For the purpose of this condition, fuel usage shall be defined as the total natural gas usage of a single turbine.

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

[Rule 1303(b)(2) - Offset]

C1.4 The operator shall limit the fuel usage to no more than 1148 MMscf in any one year.

For the purpose of this condition, fuel usage shall be defined as the total combined natural gas usage of both turbines.

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

For the purpose of this condition, the yearly fuel usage shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each consecutive month.

[Rule 1303(b)(1) - Modeling]

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, Rule 2012]

D29.4 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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 39
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

PM emissions	District Method 5.2	Approved Averaging Time	Outlet of the SCR serving this equipment
PM10 emissions	District Method 201A	Approved Averaging Time	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 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 100, 75, and 50 percent of maximum load.

The test shall be conducted to demonstrate compliance with the PM10 emission factor of 6.42 lb/MMscf. The PM10 shall be sampled by EPA Method 201A and the analysis shall be conducted by EPA method 202 or District method 5.2 or sampled and analyzed by a District Approved Method.

The test shall be conducted to demonstrate compliance with Rules 475 and 409 emission limits for PM. The test for PM shall be conducted by District Method 5.1 of 5.2 or by District Approved Method.

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

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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 40
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	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 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, Rule 1303(b)(2) – Offset, Rule 2005, Rule 1703(a)(2) – PSD BACT]

D29.5 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant 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 shall be conducted and the results submitted to the District within 45 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. 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 to demonstrate compliance with the Rule 1303 BACT concentration limit.

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

[Rule 1303(a)(1) – BACT]

D29.6 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant to be tested	Required Test Method(s)	Averaging Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not applicable	Fuel Sample

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 41
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM emissions	District Method 5.2	Approved Averaging Time	Outlet of the SCR serving this equipment
PM10 emissions	District Method 201A	Approved Averaging Time	Outlet of the SCR serving this equipment

The test shall be conducted at least once every three years.

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 maximum load.

The test shall be conducted to demonstrate compliance with the PM10 emission factor of 6.42 lb/MMscf. The PM10 shall be sampled by EPA Method 201A and the analysis shall be conducted by EPA method 202 or District method 5.2 or sampled and analyzed by a District Approved Method.

The test shall be conducted to demonstrate compliance with Rules 475 and 409 emission limits for PM. The test for PM shall be conducted by District Method 5.1 of 5.2 or by District Approved Method.

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

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 pre concentration) 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.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 42
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

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, Rule 1303(b)(2) – Offset, Rule 1703(a)(2) – PSD BACT]

D82.3 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 operated no later than 90 days after initial start-up of the turbine, and 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.

The CEMS will convert the actual CO concentrations to mass emission rates (lbs/hr) using the equation below and record the hourly emission rates on a continuous basis.

CO Emission Rate, lbs/hr = $K C_{co} F_d [20.9\% - \%O_2 d] [(Q_g * HHV)/106]$, where

$K = 7.267 * 10^{-8}$ (lb/scf)/ppm

C_{co} = Average of four consecutive 15 min. ave. CO concentration, ppm

F_d = 8710 dscf/MMBTU natural gas

$\%O_2 d$ = Hourly ave. % by vol. O_2 dry, corresponding to C_{co}

Q_g = Fuel gas usage during the hour, scf/hr

HHV = Gross high heating value of fuel gas, BTU/scf

[Rule 1703(a)(2) – PSD BACT, Rule 218]

D82.4 The operator shall install and maintain a CEMS to measure the following parameters:

NOx concentration in ppmv.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 43
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	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 2005, Rule 2012, Rule 1703(a)(2) – PSD BACT]

E193.2 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all mitigation measures stipulated in the final California Energy Commission decision for the 08-SPPE-1 project.

[CEQA]

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]

I296.3 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 emission increase.

To comply with this condition, the operator shall prior to the 1st compliance year hold a minimum NOx RTCs of 30,086 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 13,692 lbs/yr of NOx RTCs for operation of the gas turbine.

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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 44
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

This condition shall apply to the combined emissions of both turbines.
 [Rule 2005]

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), 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, Rule 1303(b)(2) – Offset, Rule 1703(a)(2) - PSD BACT, Rule 2005].

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 after CEMS certification

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 commencing from the initial first fire of the turbine to the installation of the CO oxidation catalyst

[Rule 2012, Rule 1303(a)(1) – BACT, Rule 1303(b)(2) - Offset]

SCR (DEVICES C19 & C25)

A195.7 The 5.0 ppmv NH3 emission limit(s) is averaged over 60 minutes at 15% O2, dry basis.

The operator shall calculate and continuously record the NH3 slip concentration using the following: $NH_3 \text{ (ppmv)} = [a - b * c / 1EE+06] * 1EE+06 / b$, where: a = NH3 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 NOx across the SCR (ppmvd at 15% O2).

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 45
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

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]

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 twelve months.

The pressure drop across the catalyst shall not exceed 6 inches water column
 [Rule 1303(a)(1) – BACT, Rule 2005, Rule 1703(a)(2) – PSD BACT]

D12.5 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 twelve months. The records shall be kept on site and made available to AQMD personnel upon request

The ammonia injection system shall be placed in full operation as soon as the minimum temperature is reached. The minimum temperature is listed as 515 degrees F. at the inlet to the SCR reactor.

[Rule 1303(a)(1) – BACT, Rule 2005]

D12.6 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor.

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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 46	PAGE NO. 46
	APPL. NO. 481647 (master)	DATE 2/20/2009
	PROCESSED BY M SAULIS	CHECKED BY

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

The catalyst temperature range shall remain between 515 degrees F and 870 degrees F. The inlet temperature shall not exceed 870 degrees F.

The temperature range requirement of this condition shall not apply during start-up of the turbine not to exceed 35 minutes and shutdown of the turbine not to exceed 10 minutes.

For the purposes of this condition, start-up shall be defined as the start-up process to bring the turbine to full successful operation and shutdown shall be defined as a reduction in turbine load ending in a period of zero fuel flow.

[Rule 1303(a)(1) – BACT, Rule 2005, 1703(a)(2) - PSD BACT]

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 based upon the average of the continuous monitoring for that hour.

- Condition Number D12.2
- Condition Number A195.3
- Condition Number D12.3
- Condition Number D12.5
- Condition Number D12.6
- Condition Number A195.7

[Rule 1303(a)(1) – BACT, Rule 2005-BACT, Rule 1703(a)(2) – PSD BACT]

E179.2 For the purpose of the following condition numbers, 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: D12.4

[Rule 1303(a)(1) – BACT, Rule 1702(b)(1) – PSD BACT]

E193.2 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all mitigation measures stipulated in the final California Energy Commission decision for the 08-SPPE-1 project.

[CEQA]