South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

April 16, 2013

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

Dear Mr. Rios: Gerardo

Subject: Bicent (California) Malburg (ID 155474) – Title V Permit Revision

Bicent (California) Malburg (ID 155474) has proposed to revise their Title V permit under Application No. 518851 by change of permit conditions. This is a power plant (SIC 4911) located at 4963 S. Soto Street, Vernon, CA 90058. This proposed permit revision is considered as a "minor permit revision" to their Title V permit. Attached for your review is the evaluation and permit for the proposed revision. With your expected receipt of the proposed Title V permit revision today, we will note that the EPA 45-day review period begins on April 16, 2013.

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

Very truly yours,

Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering and Compliance

cc: Douglas Halliday

MN:AYL:JTY:VL
Attachments

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ***ENGINEERING AND COMPLIANCE*** APPLICATION PROCESSING AND CALCULATIONS	PAGES 55	PAGE 1
	APPL. NO. 517249, 517250, 518851	DATE 4/12/13
	PROCESSED BY V. Lee	CHECKED BY

BICENT (CALIFORNIA) MALBURG LLC
4963 S SOTO ST
VERNON, CA 90058-2911

FACILITY ID: 155474

EQUIPMENT LOCATION: Same

PERMITS TO OPERATE—CONDITION CHANGE

EQUIPMENT DESCRIPTION

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

Note: The changes shown below are to the prior facility permit, reissued 6/26/12. The District reissued the facility permit to implement Rule 2005, which required Condition No. I296.1 to be replaced with Condition Nos. I298.1, I298.2, and I298.3.

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
System 3: ELECTRIC GENERATION, GAS TURBINE (MGS POWER ISLAND No. 1)					
GAS TURBINE, NO. 1, NATURAL GAS, ALSTOM, MODEL GTX100, @ **454.05 MMBTU/HR AT** 38 DEGREES F; (HHV); ~~454.05 MMBTU/HR~~ WITH A/N: ~~482563~~ **517249**	D27	C32 C33	NOX: MAJOR SOURCE**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; CO: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002] NOX: 110 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**]; NOX: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2)-PSD-BACT, 10-7-1988**; RULE 2005, 4-~~20-2001~~ **6-3-2011**]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	A63.3, A99.3, A99.4, **A99.5**, A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.1, K40.1
GENERATOR, CTG NO. 1, 44.2 MW	(B28)				
HEAT EXCHANGER, HRSG NO. 1	(B29)				
GENERATOR, STEAM TURBINE GENERATOR **(STG)**, COMMON WITH HRSG NO. 2	(B30)				

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
				PM: 0.01 GRAINS/SCF (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]; PM: 11 LBS/HR (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978] SO2: (9) [40 CFR 72-Acid Rain Provisions, 11-24-1997]; SOX: 150 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**] ~~SOX: (9) [40 CFR 72-Acid Rain Provisions, 11-24-1997];~~ VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
BURNER, DUCT BURNER, NATURAL GAS, SERVING HRSG NO. 1, 81.2 MMBTU/HR A/N: ~~482563~~ **517249**	D31	C32 C33	NOX: MAJOR SOURCE**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; CO: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002] NOX: 110 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**]; NOx: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2)-PSD-BACT, 10-7-1988**; RULE 2005, ~~4-~~	A63.3, A99.3, A99.4, **A99.5**, A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.1, K40.1, K67.4

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
				~~20-2001~~ **6-3-2011**]; 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]; PM: 11 LBS/HR (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978] SO2: (9) [40 CFR 72 – Acid Rain Provisions, 11-24-1997]; SOX: 150 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**] VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 1, EMERACHEM, METAL MONOLITH, SERVING TURBINE NO. 1, VOLUME 63 CU. FT. A/N: 482570	C32	D27 D31			
SELECTIVE CATALYTIC REDUCTION, NO. 1, SERVING TURBINE NO. 1, 537.1 CU FT.; WIDTH: 10 FT 11 IN; HEIGHT: 47 FT 7 IN; LENGTH: 3 FT 6 IN WITH A/N: 482570 AMMONIA INJECTION	C33 (B34)	D27 D31		NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-7-2002]	A195.4, D12.4, D12.5, D12.6, D29.3, E179.4, E179.5
STACK, NO. 1, SERVING TURBINE NO. 1, HEIGHT: 110 FT; DIAMETER: 12 FT A/N: ~~482563~~ **517249**	D35				

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
System 4: ELECTRIC GENERATION, GAS TURBINE (MGS POWER ISLAND No. 2)					
GAS TURBINE, NO. 2, NATURAL GAS, ALSTOM, MODEL GTX100, @ **454.05 MMBTU/HR AT** 38 DEGREES F; (HHV); ~~454.05 MMBTU/HR~~ WITH A/N: ~~482568~~ **517250** GENERATOR, CTG NO. 2, 44.2 MW HEAT EXCHANGER, HRSG NO. 2 **GENERATOR, STEAM TURBINE GENERATOR (STG), COMMON WITH HRSG NO. 1**	D36 (B37) (B38) **(B50)**	C40 C41	NOX: MAJOR SOURCE**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; CO: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002] NOX: 110 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**]; NOX: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2)-PSD-BACT, 10-7-1988;** RULE 2005, ~~4-20-2001~~, **6-3-2011**]; 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]; PM: 11 LBS/HR (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978] SO2: (9) [40 CFR 72-Acid Rain Provisions, 11-24-1997]; SOX: 150 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**] VOC: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-	A63.3, A99.3, A99.4, **A99.5,** A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.2, K40.1

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
				BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
BURNER, DUCT BURNER, NATURAL GAS, SERVING HRSG NO. 2, 81.2 MMBTU/HR A/N: ~~482568~~ 517250	D39	C40 C41	NOX: MAJOR SOURCE**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; CO: 2 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002] NOX: 110 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**]; NOx: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2)-PSD-BACT, 10-7-1988**; RULE 2005, ~~4-20-2001~~ **6-3-2011**]; 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]; PM: 11 LBS/HR (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978] SO2: (9) [40 CFR 72 – Acid Rain Provisions, 11-24-1997]; SOX: 150 PPMV NATURAL GAS (8) [40 CFR 60 Subpart GG, ~~3-6-1981~~ **2-24-2006**] VOC: 2 PPMV	A63.3, A99.3, A99.4, **A99.5,** A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.2, K40.1, K67.4

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
				NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]	
CO OXIDATION CATALYST, NO. 2, EMERACHEM, METAL MONOLITH, SERVING TURBINE NO. 2, VOLUME 63 CU. FT. A/N: 482571	C40	D36 D39			
SELECTIVE CATALYTIC REDUCTION, NO. 2, SERVING TURBINE NO. 2, 537.1 CU FT.; WIDTH: 10 FT 11 IN; HEIGHT: 47 FT 7 IN; LENGTH: 3 FT 6 IN WITH A/N: 482571 AMMONIA INJECTION	C41	D36 D39		NH3: 5 PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-7-2002]	A195.4, D12.4, D12.5, D12.6, D29.3, E179.4, E179.5
STACK, NO. 2, SERVING TURBINE NO. 2, HEIGHT: 110 FT; DIAMETER: 12 FT A/N: ~~482568~~ **517250**	D43				

(1) Denotes RECLAIM emission factor
(2) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emissions limit
(5)(5A)(5B) Denotes command & control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8)(8A)(8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc)
(9) See App B for Emission Limits
(10) See Section J for NESHAP/MACT requirements

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

DEVICE CONDITIONS

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

CONTAMINANT	EMISSIONS LIMIT
CO	Less than 7633 LBS IN ANY ONE MONTH
PM10	Less than 4876 LBS IN ANY ONE MONTH
VOC	Less than 3236 LBS IN ANY ONE MONTH
SOX	Less than 214 LBS IN ANY ONE MONTH

For the purposes of this condition, the limit(s) shall be based on the total combined emissions from equipment D27, D36 (both gas turbines) and D31, D39 (both duct burners).

The operator shall calculate the emissions ~~limit(s)~~ for CO, after the CO CEMS certification, based on the readings from the certified CO CEMS. In the event CO CEMS is not operating, or the emissions exceed the valid upper range of the analyzer, the ~~emissoins~~ **emissions** shall be calculated in accordance with the approved CEMS plan.

The operator shall calculate the emissions ~~limit(s)~~ by using monthly fuel use data and the following emission factors: PM10 7.397 lbs/mmscf, VOC 1.63 lbs/mmscf and SOx 0.28 lb/mmscf.

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

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-7-2002]

[Devices subject to this condition: D27, D31, D36, D39]

A99.3 The 2 PPM NOX emission limit(s) shall not apply during turbine startups and shutdowns. ~~The startups shall not exceed 2 hours per startup and the number of startup shall not exceed one per day; Shutdowns shall not exceed 30 minutes per shutdown and the number of shutdown shall not exceed one per day. Written records of startups and shutdowns shall be kept and made available to AQMD.~~

For the purposes of this condition, a startup begins with the initiation of combustion, and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips, shall not exceed 150 minutes. NOx emissions for a cold start-up, with or without trip(s), shall not exceed 122.8 lbs.

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. NOx emissions for a non-cold startup, with or without trip(s), shall not exceed 51.3 lbs.

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. NOx emissions for a shutdown shall not exceed 4.5 lbs.

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

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

[RULE 1703(a)(2) – PSD-BACT, 10-7-1988; RULE 2005, ~~4-20-2001~~ **6-3-2011]**

[Devices subject to this condition: D27, D31, D36, D39]

A99.4 The 2 PPM CO emission limit(s) shall not apply during turbine startups and shutdowns. ~~The startups shall not exceed 2 hours per startup and the number of startup shall not exceed one per day; Shutdowns shall not exceed 30 minutes per shutdown, and the number of shutdown shall not exceed one per day. Written records of startups and shutdowns shall be kept and made available to AQMD.~~

For the purposes of this condition, a startup begins with the initiation of combustion, and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips, shall not exceed 150 minutes. CO emissions for a cold start-up, with or without trip(s), shall not exceed 204.8 lbs.

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. CO emissions for a non-cold startup, with or without trip(s), shall not exceed 59.9 lbs.

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. CO emissions for a shutdown shall not exceed 10.8 lbs.

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

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

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

[Devices subject to this condition: D27, D31, D36, D39]

A99.5 The 2 PPM VOC emission limit(s) shall not apply during turbine startups and shutdowns.

For the purposes of this condition, a startup begins with the initiation of combustion, and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips, shall not exceed 150 minutes. VOC emissions for a cold start-up, with or without trip(s), shall not exceed 1.75 lbs.

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. VOC emissions for a non-cold startup, with or without trip(s), shall not exceed 1.55 lbs.

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. VOC emissions for a shutdown shall not exceed 0.71 lbs.

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

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

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

[Devices subject to this condition: D27, D31, D36, D39]

A195.1 The 2 PPMV NOX emission limit(s) is averaged over 1 hour at 15 percent oxygen, dry basis.

[**RULE 1703(a)(2) – PSD-BACT, 10-7-1988;** RULE 2005, ~~4-20-2001~~ **6-3-2011**]

[Devices subject to this condition: D27, D31, D36, D39]

A195.2 The 2 PPMV CO emission limit(s) is averaged over 3 hours at 15 percent oxygen, dry basis.

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

[Devices subject to this condition: D27, D31, D36, D39]

A195.3 The 2 PPMV VOC emission limit(s) is averaged over 1 hour at 15 percent oxygen, dry basis.

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

[Devices subject to this condition: D27, D31, D36, D39]

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: D27, D31, D36, D39]

C1.4 The operator shall limit the fuel usage to no more than 330 MM cubic feet in any one calendar month.

The purpose(s) of this condition is to ensure that the total PM10 emissions shall not exceed 2,438 lbs/month per turbine.

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

[Devices subject to this condition: D27, D31, D36, D39]

D12.3 The operator shall install and maintain a(n) non-resettable totalizing fuel flow meter to accurately indicate the fuel usage of the turbine.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 2005, ~~4-9-1999~~ **6-3-2011**; ~~RULE 2005, 4-20-2001~~]

[Devices subject to this condition: D27, D31, D36, D39]

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

The test 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 District 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 demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limits.

The test shall be conducted 1) when the gas turbine and the duct burner are operating simultaneously at 100 percent of maximum heat input and 2) when the gas turbine is operating alone at 100 percent of maximum heat input.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit. For natural gas fired turbines only, this shall be demonstrated by the following test method:

a) Stack gas samples are extracted into Summa canisters, maintaining a final canister pressure between 400 – 500 mm Hg absolute

b) Pressurization of Summa canisters is done with zero gas analyzed/certified to containing less than 0.05 ppmv total hydrocarbons as carbon

c) Analysis of Summa canisters is per EPA Method TO-12 (with pre-concentration) and the temperature of the Summa canisters when extracting samples for analysis is not to be below 70 degrees F

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

[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]

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 to measure CO concentration over a 15 minutes averaging time period.

[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: D27, D31, D36, D39]

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.

[RULE 2012, ~~5-11-2001~~ **5-6-2005**]

[Devices subject to this condition: D27, D31, D36, D39]

E57.1 The operator shall vent this equipment to CO oxidation/SCR control system whenever the turbine is in operation.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1703(a)(2) – PSD-BACT, 10-7-1988,** RULE 2005, ~~4-20-2001~~ **6-3-2011**]

[Devices subject to this condition: D27, D31, D36, D39]

I298.1 This equipment shall not be operated unless the facility holds ~~35263~~ **40492** pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds ~~35263~~ **40492** pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005, 6-3-2011]

[Devices subject to this condition: D27, D31]

I298.2 This equipment shall not be operated unless the facility holds ~~35263~~ **40492** pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds ~~35263~~ **40492** pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005, 6-3-2011]

[Devices subject to this condition: D36, D39]

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) correct 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.

Source test results shall also include turbine fuel flow rate under which the test was conducted.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 1703(a)(2) – PSD-BACT, 10-7-1988;** RULE 2005, ~~4-20-2001~~ **6-3-2011**]

[Devices subject to this condition: D27, D31, D36, D39]

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

~~e~~**O**perational status of the duct burner and its fuel usage

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 2005, ~~4-20-2001~~ **6-3-2011**; ~~RULE 2012, 12-7-1995~~; RULE 2012, ~~3-16-2001~~ **5-6-2005**]

[Devices subject to this condition: D31, D39]

BACKGROUND

Bicent (California) Malburg LLC ("Bicent") (ID 155474) is the owner of the Malburg Generating Station ("MGS"), which generates electric power for sale to the City of Vernon. Colorado Energy Management, LLC operates the MGS. MGS is Title V and RECLAIM, with the Title V term running from 9/9/09 to 9/8/14.

The MGS had been constructed by the Vernon City, Light & Power Dept (ID 14502) to augment its original power plant. The Permits to Construct for the original project were issued on 5/27/03, and the Permits to Operate on 1/31/08. The City began construction in 2003, with commercial operations

beginning in 2005. The transfer of operator from the City of Vernon to Bicent occurred in April 2008. The change of ownership permits were issued on 3/18/09.

The MGS consists of (1) two combined cycle, natural gas fueled combustion turbines with associated generators, duct burners and heat recovery steam generators, and a common steam turbine generator; (2) two CO oxidation catalyst and selective catalytic reduction (SCRs); (3) aqueous ammonia tank; and (4) oil water separator. (The City of Vernon continues to operate its original power plant, located adjacent to the MGS, consisting of two peaking turbines and six emergency internal combustion engines, under ID 14502.)

On 12/16/10, Richard McNeil, then a partner with Irell & Manella LLP, filed on behalf of Bicent two change of condition applications for the two turbines. On 2/11/11, Mr. McNeil, then a partner with Jeffer Mangels Butler & Mitchell LLP, filed the associated RECLAIM/Title V facility permit amendment application.

The applications are summarized below.

A/N	**Prior Permit (A/N)**	**Equipment**	**Device Nos.**	**Proposed Condition Changes**	**Recommended Disposition**
517249	G1917 (A/N 482563)	Gas Turbine No. 1 Duct Burner	D27 D31	Revise condition nos. A99.3 and A99.4 (currently limiting the number of startups and shutdowns to one per day) to allow a maximum of two startups and two shutdowns per day during a period not to exceed five days per year (within a 30 day window of time) during which required annual maintenance is conducted.	Condition nos. A99.3 and A99.4 will be revised to reflect current startup and shutdown requirements.
517250	G1918 (A/N 482563)	Gas Turbine No. 2 Duct Burner	D36 D39	Same.	Same.
518851		RECLAIM/Title V Facility Permit Amendment—Minor Revision			Approve after completion of EPA minor revision review.

Condition nos. A99.3 and A99.4 state the BACT limits of 2 ppm NOx and the 2 ppm CO, respectively, shall not apply during turbine startups and shutdowns, with no more than one startup/shutdown per day. Consequently, Bicent had been required to seek a variance from conditions nos. A99.3 and A99.4 in 2009 (Case No. 5727-1) and in 2010 (Case No. 5727-3) to accommodate start-ups and testing during the annual maintenance period of its two turbines that is required once per year. During the last variance hearing in 2010, the Hearing Board directed Bicent to seek a permit revision to accommodate more than one startup and shutdown per day during this startup/testing period in lieu of seeking a variance. Annual maintenance activities are not "beyond the reasonable control" of Bicent since they are planned and known to be necessary in advance of the variance period.

Pg. 4 of the application cover letter from Mr. McNeil, dated 12/13/10, stated: "During the periods in 2009 and 2010 that Bicent had variance coverage for the initial plan startups and testing subsequent to required annual maintenance, there were no excess emissions of NOx or CO." The implication was the lack of excess emissions means that the proposed condition change would not result in an increase in NOx or CO emissions. The implication is not correct. For Case No. 5727-1, there were no excess emissions because the facility was able to tune the gas generators without additional start-ups and shutdowns. For Case No. 5727-3, there were excess emissions payments for NOx and CO for 9 variance days, but there are no details.

On 3/15/11, the first e-mail requesting additional information was sent to Mr. McNeil. Subsequently, ENVIRON was retained to handle the permitting, but the Bicent policy was that facility input would be minimal. Finally, Bicent took over the permitting in August 2012 and was able to provide input based on operating experience.

Note: A/N 517249 is the master project.

History of Applications/Permits for Two Turbines

- **Turbine No. 1**
  - *Vernon City, Light & Power Dept (ID 14502)*
    A/N 394164—Original application for Turbine No. 1, submitted 12/7/01. Master file for Malburg Generating Station Project. P/Cs issued 5/27/03.
    A/N 443084—Administrative revision for P/C to P/O conversion. P/Os issued 1/31/08.
    A/N 486719—Administrative revision to correct the turbine and duct burner heat input rates. P/O issued 9/19/08.

  - *Bicent (California) Malburg LLC (ID 155474)*
    482563—Change of operator. P/Os issued 3/18/09.

- **Turbine No. 2**
  - *Vernon City, Light & Power Dept (ID 14502)*
    A/N 394165—Original application for turbine, submitted 12/7/01. P/Cs issued 5/27/03.

A/N 443085—Administrative revision for P/C to P/O conversion. P/Os issued 1/31/08.
A/N 486721—Administrative revision to correct the turbine and duct burner heat input rates. P/O issued 9/19/08.

- *Bicent (California) Malburg LLC (ID 155474)*
  482568—Change of operator. P/Os issued 3/18/09.

*****The applicable pre-condition change analyses for the emissions calculations, modeling, and HRA are set forth in the Final Determination of Compliance (FDOC), dated 12/13/02.**

On-Base Image Retrieval System
A/N 394164, the original application for Turbine No. 1, was the master file for the Malburg Generating Station project. As originally sent to the Records Dept, this application file was comprised of one volume containing miscellaneous documents (749 pages), which can be found under "Application Folder" for A/N 394164.

In conjunction with the evaluation of these pending applications, three boxes of original application materials (dated 2000 – 2005) were reviewed, chronologically ordered, and sent to the Records Dept. to augment the application file for A/N 394164. These materials include the original project application package prepared by Parsons. The additional materials are located under "Accessions" for A/N 394164, not under "Application Folder."

Further, the following Malburg Generating Station application files for IDs 14502 and 155474, currently stored in a file cabinet, will be sent to the Records Dept now: A/N 394157, 394163, 394165, 394166, 394167, 438859, 443083, 443084, 443085, 482563, 482567, 482568, 482570, 482571, 482573, 482574, 482576, 486719, and 486721.

SUMMARY OF CHANGES TO CONDITION NOS. A99.3 (NOx) AND A99.4 (CO)
Bicent was informed that condition nos. A99.3 (NOx) and A99.4 (CO) will be required to be updated to reflect current permit conditions regarding start-ups and shutdowns. Since the original permits were issued, EPA has imposed requirements to minimize emissions during start-ups and shutdowns during which BACT is not met. In addition, condition A99.5 will be added for VOC start-ups and shutdowns. In response, the facility requested a number of changes to the startup and shutdown bases used in the FDOC based on actual operating experience. As explained above, the applicable pre-condition change analyses are based on the FDOC.

1. No. of Cold Start-up Increase, Monthly and Annual
   a. Monthly
      For the FDOC, as discussed below under *Emissions Calculations, AQMD Standard Procedure—Maximum Monthly Emissions*, the normal operating emissions performed pursuant to the standard procedure for predicting the monthly maximum emissions for

continuously operating equipment assumed **one cold start-up, 4 warm start-ups (includes warm and hot starts) and 5 shutdowns for the maximum emissions month.** Cold start-up occurs after more than 72 hours of shutdown. Warm start-up occurs between 8 and 72 hours of shutdown. Hot start-up occurs within 8 hours of shutdown.

For this revision, the applications proposed that condition nos. A99.3 and A99.4 (currently limiting the number of startups and shutdowns to one per day) be revised to allow a maximum of two startups and two shutdowns per day during a period not to exceed five days per year (within a 30 day window of time) during which required annual maintenance is conducted. For NSR, this translates to five cold starts, 5 non-cold starts (new terminology for warm and hot startups), and 10 shutdowns for the maximum emissions month.

Condition nos. A99.3 and A99.4 will be revised to remove the one startup and one shutdown per day limit. The conditions will add that the turbine shall be limited to a maximum of 10 start-ups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. This will be for <u>any</u> month, not a single month in which maintenance takes place, because NSR is based on the maximum emissions month. New condition A99.5 will mirror these two conditions.

b. <u>Annual</u>
For the FDOC, the applicant requested a maximum of 56 total start-ups, 4 cold and 52 warm. This was the basis for the number of NOx RTCs required by condition nos. I298.1 and I298.2.

For this revision, Bicent requests a maximum of 56 total start-ups, with a maximum of 30 cold starts. (See below for definition change for cold start.) The reason is that the plant is "base loaded" at this time, but that could change at any time. The plant could be used more in a "peaking' capacity at any time in the future, or some combination of the two. Therefore, it is imperative that they maintain the startup flexibility to make plant operation viable.

Condition nos. A99.3 and A99.4 will be revised to add that the turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

2. <u>NOx & CO Increases for Cold Startups</u>
For the FDOC, the lbs/event for a cold start were 15.75 lb NOx and 24.5 lb CO. The maximum hourly emissions were 13.1 lb/hr NOx and 24.3 lb/hr CO for each engine.

For this revision, the lbs/cold start and maximum hourly emissions for NOx and CO will be substantially higher. Pg. 4 of the application cover letter from Mr. McNeil, dated 12/13/10, stated: "Fourth, pursuant to Bicent's California Energy Commission license, each turbine is

subject to NOx limits of 55 lbs/hr, 230 lbs/day and 53,044 lbs/year and CO limits of 140 lbs/hr, 245 lbs/day and 37,768 lbs/yr." Subsequently, the applicant provided a copy of the Staff Analysis of Proposed Modifications of Conditions Relating to Startup Emission Limits for Combustion Turbines, dated 3/26/08, prepared by Joseph M. Loyer, including a CEC cover letter, dated 3/27/08, from Steve Munro, Compliance Project Manager. The above emissions limits are listed on pg. 6 of the staff analysis, which was prepared in response to a petition filed by the City of Vernon on 12/19/07 to increase cold start-up emissions limits for NOx and CO based on previous exceedances. CEC Order No. 08-813-4, dated 8/13/08, approved the Petition to Modify Condition AQ-C10 Regarding Air Emission Limits Related to Cold Startups, with the proposed emission limits, as modified by staff. AQ-C10 sets hourly, daily, and annual emissions limits. The Order stated: "The modifications were approved by the South Coast Air Quality Management District. No District permit changes are necessary."

The District has not previously evaluated the effect of the CEC's approved emissions limit increases. **The two increases that affect District requirements are the approved increases to the maximum hourly emissions and lbs/event for cold startups**. These increases will be incorporated in this evaluation.

The changes are summarized in the table below.

COLD START-UP EMISSIONS

Pollutants	**Maximum Hourly Emissions**		**Lbs/Cold Start-up**	
	Pre-Condition Change (FDOC)	**Post-Condition Change: CEC Order [1]**	**Pre-Condition Change (FDOC)**	**Post-Condition Change: CEC Staff Analysis [2]**
NOx	26.2 lb/hr for two turbines [Per FDOC, 13.1 lb/hr for one turbine]	55 lb/hr for two turbines [equal to 27.5 lb/hr for one turbine]	15.75 lb/event per FDOC (15.25 lb/event per CEC Staff Analysis)	122.8 lb/event
CO	48.6 lb/hr for two turbines [Per FDOC, 24.3 lb/hr for one turbine]	140 lb/hr for two turbines [equal to 70 lb/hr for one turbine]	24.5 lb/event	204.8 lb/event

[1] CEC Order No. 08-813-4, pg. 3.
[2] CEC Staff Analysis, pg. 2.

The facility was informed that the NOx and CO emissions for a cold start were established by CEC Order No. 08-813-4 in 2008 for the City of Vernon. The facility provided confirmation that the turbines have continued to meet the aforementioned limits.

Consequently, condition A99.3 will be revised to add a limit of 122.8 lb/event NOx for a cold start and condition A99.4 will be revised to add a limit of 204.8 lb/event CO. New condition A99.5 will include a limit of 1.75 lbs/event VOC for a cold start based on the FDOC.

3. NOx & CO Emission Increases for Non-Cold Startups

For the FDOC, the lbs/event for a warm start were 13.43 lb NOx and 9.95 lb CO. The warm start limits are applicable to warm and hot starts.

For this revision, Bicent was informed the non-cold start emissions (new terminology encompassing both warm and hot starts) and shutdown emissions may be revised based on actual CEMS data for 56 start-ups as the FDOC was based on an annual limit of 56 start-ups.

The facility responded that there have been about 75 starts for each combustion turbine in the last five years, and only 34 of them have been warm starts. Further, CEMS minute data is maintained for one year and then that data is overwritten due to electronic storage constraints and only 15-minute and hourly data are retained. Since a "start-up event" has never been configured into the DAHS, they can only extrapolate emissions using minute CEMS data for the past 12 months. The maximum emissions provided for a non-cold start were initially based on 120 minutes but were revised to be based on 90 minutes. The reason is that the FDOC was based on 120 minutes for a cold start and 90 minutes for a warm start. The facility confirmed that non-cold starts take less than 90 minutes, except in the case of a trip occurring. See discussion below on the effects of a trip.

The new limits for non-cold starts were proposed by the facility based on actual CEMS data (90 minutes duration) and a 15% margin of safety, as follows:

NON-COLD START-UP EMISSIONS

Pollutants	Lbs/Non-Cold Start-Up	
	Pre-Condition Change (FDOC)	Post-Condition Change: CEMS Data
NOx	13.43 lb/event	44.6 lb/event[1] x 1.15 = 51.3
CO	9.95 lb/event	52.1 lb/event[2] x 1.15 = 59.9

[1] Turbine No. 1 on 7/4/12.
[2] Turbine No. 2 on 2/26/12.

Consequently, condition A99.3 will be revised to add a limit of 51.3 lb/event NOx for a non-cold start and condition A99.4 will be revised to add a limit of 59.9 lb/event CO. New

condition A99.5 will include a limit of 1.75 lbs/event VOC for a non-cold start based on the FDOC.

4. NOx & CO Emissions Changes for Shut-downs

For the FDOC, the lbs/event for a shutdown were 5.51 lb NOx and 4.75 lb CO.

For this revision, the facility provided CEMS minute data for shutdowns for one year. The new limits are proposed by the facility based on actual CEMS data (30 minutes duration) and a 15% margin of safety.

SHUT-DOWN EMISSIONS

Pollutants	Lbs/Shutdown	
	Pre-Condition Change (FDOC)	Post-Condition Change: CEMS Data
NOx	5.51 lb/event	3.95 lb/event[1] x 1.15 = 4.5
CO	4.75 lb/event	9.40 lb/event[2] x 1.15 = 10.8

[1] Turbine No. 2 on 3/3/12.
[2] Turbine No. 1 on 3/3/12.

Consequently, condition A99.3 will be revised to add a limit of 4.5 lb/event NOx for a shutdown and condition A99.4 will be revised to add a limit of 10.8 lb/event CO. New condition A99.5 will include a limit of 0.71 lbs/event VOC for a cold start based on the FDOC.

5. Duration of Cold Starts, Non-Cold Starts, and Shutdowns

For the FDOC, the duration of a cold start was 2 hr, the duration of a warm start was 1.5 hr, and the duration of a shutdown was 0.5 hr.

For this revision, the facility requested a 120 minutes for a cold start, and 150 minutes if one or more trips occur during the startup. Further, the facility requested 90 minutes for a non-cold start, and 120 minutes if one or more trips occur during the startup. The proposed emissions limits for NOx and CO for cold and non-cold starts discussed above would be applicable with or without one or more trips. The duration of a shutdown remains 30 minutes.

Consequently, condition nos. A99.3, A99.4, and A99.5 will include these time limits to ensure that BACT limits are reached as soon as possible.

6. Definitions

For the FDOC, a cold start occurs after more than 72 hours of shutdown, a warm start occurs between 8 and 72 hours of shutdown, and a hot start occurs within 8 hours of shutdown.

For this revision, the facility requested that the cutoff for cold start be decreased from 72 hours to 48 hours because the equipment has been observed to be just as cold at 48 hours after shutdown as it is at 72 hours.

Further, the facility provided input for the definitions of "cold start," non-cold start," "shutdown," and "trip" which will be added to condition nos. A99.3 and A99.4, as well as included in A99.5, for clarification.

The facility proposed that startup conclude at the end of the 15-minute quadrant in which BACT is achieved. The reason is emission rates may not be quite stabilized at the exact minute a turbine achieves BACT and this could result in a violation as emissions continue to stabilize for a few more minutes. This proposal is consistent with CEMS monitoring requirements for RECLAIM. Specifically, RECLAIM requires that all NOx concentration, volumetric flow, and NOx emission rate data shall be reduced to 1 hour averages, and valid hour averages shall be equally computed based on four valid 15-minute average emission data points equally spaced over each 1-hour period.

PROCESS DESCRIPTION

1. A/N 517249--Condition Changes to Turbine No. 1 & Duct Burner, G1917 (A/N 482563)
2. A/N 517250—Condition Changes to Turbine No. 2 & Duct Burner, G1918 (A/N 482568)
   a. Pre-Condition Change

      The MGS power plant is a natural gas fired, combined cycle electric power generating facility with two identical power units. Each power unit consists of a combustion turbine (CT), a combustion turbine generator (CTG), and a heat recovery steam generator (HRSG). The exhaust from each turbine flows into its associated HRSG, which produces steam from the waste heat in the exhaust. The steam from the two HRSGs drives a shared steam turbine generator (STG). Each HRSG is equipped with a duct burner rated at 81.2 MMBtu/hr.

      Each CT is equipped with an inlet air cooler to control inlet air temperature and enhance turbine performance during hot weather. The cooled air is compressed prior to being fed to the combustor. The preheated natural gas is mixed with the compressed air and the mixture is ignited in the combustor. The high-pressure, high temperature gas produced in the combustion section is expanded through the turbine blades, which drive the turbine, the electric generator and the turbine compressor. The turbine exhaust gas passes through insulated ducts to a horizontal HRSG. Steam produced in the HRSG rotates the shared steam turbine generator (STG). The net power output from the two combustion turbines (CTs) and the shared steam turbine generator (STG) is approximately 134 MW (net power output at annual average temperature of 65 °F and 50% relative humidity).

      Each CT is equipped with built-in pollution controls consisting of dry low NOx (DLN) combustors to reduce NOx emissions. These DLN combustors reduce NOx emissions to

approximately 22 ppmvd at 15% oxygen at the CTG exhaust by pre-mixing fuel and air immediately prior to combustion. Pre-mixing inhibits NOx formation by minimizing the flame temperature and the concentration of oxygen at the flame front. The DLN combustor reduces the CO and VOC emissions to 6 ppmvd and 3.6 ppmvd at 15% O_2, respectively.

Each HRSG is equipped with post combustion emissions controls for further reduction of NOx, CO and VOC emissions. The Selective Catalytic Reduction (SCR) system reduces NOx emissions by 90% or more to meet the BACT limit of 2 ppm (1-hr average). The SCR process uses ammonia (NH_3) as a reducing agent to catalytically convert NOx to molecular nitrogen (N_2) and water vapor. The unreacted ammonia concentration, known as ammonia slip, is limited to 5 ppm at 15% O_2. The SCR system includes a catalyst chamber, catalyst bed, and ammonia vaporization and injection systems, with the ammonia injection grid located upstream of the catalyst chamber. The CO oxidation catalyst reduces CO and VOC emissions. The CO emissions is reduced by 90% and the formaldehyde and other hazardous air pollutants (HAPs) by 85-90%. The PM_{10} and SOx are controlled by the use of the natural gas fuel.

b. Post-Condition Change
There will be no physical changes to the equipment.

EMISSIONS CALCULATIONS

1. A/N 517249--Condition Change to Turbine No. 1 & Duct Burner, G1917 (A/N 482563)
2. A/N 517250—Condition Change to Turbine No. 2 & Duct Burner, G1918 (A/N 482568)

The combustion of natural gas in the turbine and duct burner produces criteria pollutants.

a. Pre-Condition Change, G1917 (A/N 482563)
Pre-Condition Change, G1918 (A/N 482568)

The prior application, A/N 482563, is for a change of operator and does not include emissions calculations. Documents relevant to the emissions calculations are found in A/N 394164 (in On-Base under "Application Folder" and "Accessions") and A/N 443084.

30-Day Averages

The 30-day average for each criterion pollutant is based on the higher of the emissions for a commissioning month (first or second month) or a normal operating month. Therefore, the commissioning month emissions and normal operating month emissions are required to be calculated for comparison. These calculations are reproduced below.

1) Commissioning Emissions

Commissioning is a one-time event that occurs between the installation of a turbine and the beginning of commercial operation. During commissioning, the facility

follows a systematic approach to optimize the performance of the CTG and associated control equipment. Tests are performed on the units to verify performance and make necessary adjustments.

The commissioning of each CTG was proposed to take place over 74 days. The commissioning for the two CTGs would take place over three months, with the commissioning of the second unit beginning 15 days after the start of the commissioning of the first unit and lasting through the 89th day of the commissioning period. As the CO catalysts were installed prior to the commissioning period, the CO and VOC emissions were controlled during the commissioning.

The following table shows the commissioning period emissions for each CTG unit provided by the manufacturer. [See FDOC, pg. 28.]

Pollutant	1st Month Emissions, lbs			2nd Month Emissions, lbs			3rd Month Emissions, lbs		
	Turbine 1	Turbine 2	Total	Turbine 1	Turbine 2	Total	Turbine 1	Turbine 2	Total
NOx	1,999	1,584	3,583	1,001	848	1,849	699	1,267	1,966
CO	2,728	965	3,693	**3,521**	**4,112**	**7,633**	933	2,105	3,038
PM10	280	122	402	555	303	858	567	977	1,544
VOC	**1,765**	**1,471**	**3,236**	1,529	690	2,219	192	1,325	1,517
SOx	16	9	25	23	14	37	22	38	60

Ref: Data from Appendix A-1, Revised Supplement for Application for P/C-P/O, dated July 18, 2002

The highest commissioning emissions for Turbines 1 and 2 are shown in bold font in the table above. The highest CO emissions occur in the second month of commissioning) and VOC (first month of commissioning).

CO Commissioning second month
Turbine 1: 3521 lb/month / 30 days = 117.36 lb/day → 117 lb/day
Turbine 2: 4112 lb/month / 30 days = 137.07 lb/day → 137 lb/day

VOC Commissioning first month
Turbine 1: 1765 lb/month / 30 days = 58.83 lb/day → 59 lb/day
Turbine 2: 1471 lb/month/ 30 days = 49.03 lb/day → 49 lb/day

2) *Normal Operating Emissions*

The normal operating emissions were calculated using two different methodologies: *a)* AQMD Standard Procedure-Maximum Monthly Emissions, and *b)* Applicant Analysis for Offset Requirements.

a) *AQMD Standard Procedure—Maximum Monthly Emissions*

The following emissions calculations were performed pursuant to the standard procedure to predict the monthly maximum emissions for continuously operating equipment. The facility requested a maximum of 56 total start-ups, 4 cold and 52 warm. **This operating case assumes one cold start-up, 4 warm start-ups and 5 shutdowns for the maximum emissions month.**

The manufacturer provided data for thirteen operating scenarios corresponding to a full range of possible turbine loads, ambient temperatures, and duct burner status for normal operation. Scenario No. 13 (combustor at 100% load, 38°F ambient, duct burner on, evaporative cooler off) provided the highest hourly emissions (highest exhaust gas flowrate), as summarized in the following table. [See FDOC, pg. 21.]

Scenario No.	Load %	Ambient Temp °F	Duct Burner Status	Heat Input		Exhaust Flow Rate, mmscf/hr
				mmbtu/hr	mmscf/hr	
13	100	38	On	535.27	0.526	16.84

Ref: Data from Appendix A5, S-13, Revised Supplement for Application for P/C-P/O, dated July 18, 2002

One, the manufacturer provided the turbine emission factors for Scenario No. 13 as summarized in the following table. [See FDOC, pg. 22.] The controlled PM_{10} emissions rate is higher than the uncontrolled emission rate because of the 53% conversion of SO_2 to SO_3 through the CO catalyst and SCR. SO_3 turns into ammonium sulfate, which constitutes PM_{10}.

	Ppmvd @ 15% O_2		lb/mmbtu		lb/mmcf		lb/hr	
	Uncntrld	Cntrld	Uncntrld	Cntrld	Uncntrld	Cntrld	Uncntrld	Cntrld
NOx	22	2	0.0839	0.0076	85.38	7.76	44.91	4.08
CO	6	2	0.0139	0.0046	14.16	4.71	7.45	2.48
PM_{10}	---	---	0.0066	0.0073	6.72	7.39	3.53	3.89
VOC	3.6	1.2	0.0048	0.0016	4.87	1.62	2.56	0.85
SOx	---	---	0.00059	0.00028	0.60	0.28	0.32	.015
NH_3	---	5	---	0.0070	---	7.17	---	3.80

Ref: Data from Appendix A-5, S-13, Revised Supplement for Application for P/C – P/O, dated July 18, 2002

Two, the manufacturer provided start-up scenario emissions for the worse case at 38°F ambient temperature, as shown in the table below. [See FDOC, pg. 23.] Cold start-up occurs after more than 72 hours of shutdown. Warm start-up occurs between 8 and 72 hours of shutdown. Hot start-up occurs within 8 hours of shutdown. During start-up, NOx, CO, and VOC will be higher because the dry low NOx combustor is not effective until the CTG reaches 50% load, and the SCR is not effective until the minimum operating temperature is reached.

For PM_{10} and SOx, the emission factor (lb/mmscf) for each remains constant and the start-up emissions reflect the gas usage for the event.

Time Period	Fuel Use, scf/period	NOx, lb/period	CO, lbs/period	VOC, lbs/period	PM_{10} lbs/period	SOx lbs/period
2 hr cold start	596,600	15.75	24.5	1.75	4.37	0.2
1.5 hr warm start	501,000	13.43	9.95	1.55	3.65	0.16
1 hr hot start	334,000	8.11	6.63	1.04	N/A	N/A

Ref: Data from Appendices A2, A3, and A4, Scenarios C1, W1 & H1, Revised Supplement for Application for P/C-P/O, dated July 18, 2002.

Three, the manufacturer provided normal shutdown emissions for the worse case at 38°F ambient, as shown in the table below. [See FDOC, pg. 24.]

Time Period	NOx, lb/period	CO, lb/period	VOC lb/period	PM_{10} lb/period	SOx lb/period
0.5 hr shutdown	5.51	4.75	0.71	0.92	0.03

Ref: Data from Appendices A6, Tables SH1, SH2, SH3, Revised Supplement for Application for P/C-P/O, dated July 18, 2002.

Operating Schedule: 52 wk/yr, 7 days/wk, 24 hr/day

As stated above, this operating case assumes one cold start-up, 4 warm start-ups and 5 shutdowns for a maximum emissions month. One month = 30 days = 720 hours. The remaining hours of operation (709.5 hrs as calculated below) will be in normal mode per Scenario 13.

Normal hrs of operation = 720 hrs – [one cold start (2 hrs) + 4 warm startups (1.5 hrs each) + 5 shutdowns (0.5 hr each)] = 709.5 hrs

NOx

NOx emissions calculations are provided here for informational purposes only. The number of RTCs required is calculated under the Rule 2005 analysis below.

Maximum monthly emissions = (15.75 lb/cold start-up)(1 cold start-up) + (13.43 lb/warm startup)(4 warm startups) + (5.51 lb/shutdown) (5 shutdowns) + (4.08 lb/hr normal operation)(709.5 hr) = 2992 lb

30 DA = 2992 lb/30 days = 99.7 lb/day → 100 lb/day

CO

Maximum monthly emissions = (24.5 lb/cold start-up)(1 cold start-up) + (9.95 lb/warm startup)(4 warm startups) + (4.75 lb/shutdown) (5 shutdowns) + (2.48 lb/hr normal operation)(709.5 hr) = 1848 lb

30 DA = 1848 lb/30 days = 61.6 lb/day → 62 lb/day

PM_{10}

Maximum monthly emissions = (4.37 lb/cold start-up)(1 cold start-up) + (3.65 lb/warm startup)(4 warm startups) + (0.92 lb/shutdown) (5 shutdowns) + (3.89 lb/hr normal operation)(709.5 hr) = 2784 lb

30 DA = 2784 lb/30 days = 92.8 lb/day → 93 lb/day

VOC

Maximum monthly emissions = (1.75 lb/cold start-up)(1 cold start-up) + (1.55 lb/warm startup)(4 warm startups) + (0.71 lb/shutdown) (5 shutdowns) + (0.85 lb/hr normal operation)(709.5 hr) = 615 lb

30 DA = 615 lb/30 days = 20.5 lb/day → 21 lb/day

SOx

Maximum monthly emissions = (0.2 lb/cold start-up)(1 cold start-up) + (0.16 lb/warm startup)(4 warm startups) + (0.03 lb/shutdown) (5 shutdowns) + (0.15 lb/hr normal operation)(709.5 hr) = 107 lb

30 DA = 107 lb/30 days = 3.57 lb/day → 4 lb/day

b) *Applicant Analysis for Offset Requirements*

Subsequent to receiving the offset requirements calculated above from the District, the consultant for the City of Vernon provided an analysis of six different operating scenarios for offset requirements for CO, VOC, and PM_{10}, and provided monthly emissions and 30-day averages for each scenario. These are the only pollutants to require offsets. (The FDOC, pg. 90, states the scenario descriptions and calculation details are found in Pg. 4-5, Section 4 of the Application for P/C-P/O, dated Dec. 7, 2011; and Appendix A-8 of the Revised Supplement for Application for P/C-P/O, dated July 18, 2002.)

The highest emissions will occur during Scenario no. 1 for all the pollutants during the normal operation of the CTGs. The scenario involves 240 hours of normal operation with duct burner per month, 480 hours of normal operation

without duct burner per month, and no startups or shutdowns, during the summer season with an ambient temperature of 65 °F.

For Scenario 1, the monthly emissions and 30 day averages for CO, PM_{10}, and VOC are shown in the table below. [See FDOC, pg. 90.]

Scenario	CO Emissions		PM_{10} Emissions		VOC Emissions	
	lbs/mo	30-day Avg	lbs/mo	30-day Avg	lbs/mo	30-day Avg
1	1586	53	2438	81	559	19

Ref: Table 4-7 (Page 4-20, Section 4, Appendix B-9, Application for P/C-P/O, dated 12-7-01); Revised Supplement for Application for P/C-P/O, dated 7-18-02; and Dr. Krishna Nand's e-mail of 10-18-02.

The District accepted this method of calculation for PM_{10} offsets only in response to the applicant's request to reduce the number of expensive PM_{10} offset credits required. The highest monthly CO and VOC emissions occur during a commissioning month.

The emissions calculation and fuel usage for PM_{10} were presented as follows:

Maximum monthly emissions (at 65 °F ambient) = (3.78 lb/hr with duct burner)(240 hr) + (3.19 lb/hr without duct burner) (480 hr) = 2438 lb/month

30 day average = 2438 lb/30 days = 81 lb/day

Maximum monthly fuel usage (at 65 °F) = (0.511 mmscf/hr with duct burner)(240 hr) + (0.432 mmscf/hr without duct burner) (480 hr) = 330 mmscf/month

*** Existing condition A63.3 limits the PM_{10} emissions for two turbines to 4876 lbs in any month (2 times 2438 lb/month-turbine).*

***Existing condition C1.4 limits the fuel usage to 330 MM cubic ft in any one calendar month to ensure that the PM_{10} emissions shall not exceed 2438 lb/month per turbine.*

3) *Bases for 30-Day Averages*

The 30-day average for each criterion pollutant is based on the higher of the emissions for a commissioning month (first or second) or a normal operating month. The normal operating month emissions were calculated two ways.

The 30-day averages for each turbine and the basis for the 30-day averages are summarized in the table below. [See FDOC, pg. 94]

Pollutant	Turbine 1 30-day Avg, lb/day	Turbine 2 30-day Avg, lb/day	Bases for 30-day Averages
NOx	99	99	Normal operating emissions per standard procedure for calculating maximum monthly emissions (Scenario 13)—Provided for informational purposes only as this is a RECLAIM facility.
CO	117	137	Commissioning period, 2nd month
PM_{10}	81	81	Normal operating emissions pursuant to applicant analysis for offset requirements (Scenario 1)
VOC	59	49	Commissioning period, 1st month
SOx	4	4	Normal operating emissions pursuant to AQMD standard procedure for calculating maximum monthly emissions (Scenario 13)

R1 and R2 Calculations

The NSR data summary sheet requires uncontrolled (R1) and controlled hourly and daily emissions rates (R2). The following shows the calculations to derive the R1 and R2 for each criteria pollutant.

The 30-day averages in NSR are **not** the 30-day averages calculated from the R2 emission rate. The 30-day averages were manually input using the override function and are the higher of the emissions for a commissioning month or a normal operating month.

Operating Schedule: 52 wk/yr, 7 days/wk, 24 hr/day

NOx: R1, lb/hr = (22 ppm x 10^{-6})(16.84 mmscf/hr)(lb mol/379.4 scf)(46 lb/lb mol) = 44.91 lb/hr
lb/day = (44.91 lb/hr) (24 hr/day) = 1077.84 lb/day

R2, lb/hr = (2 ppm x 10^{-6} BACT)(16.84 mmscf/hr)(lb mol/379.4 scf)(46 lb/lb mol)
= 4.08 lb/hr
lb/day = (4.05 lb/hr)(24 hr/day) = 97.92 lb/day

30 DA = 99 lb/day for Turbines 1 and 2

[Normal operating emissions, standard procedure for calculating maximum monthly emissions (Scenario 13)]

CO: R1, lb/hr = (6 ppm x 10^{-6})(16.84 mmscf/hr)(lb mol/379.4 scf)(28 lb/lb mol) = 7.45 lb/hr
lb/day = (7.45 lb/hr) (24 hr/day) = 178.8 lb/day

R2, lb/hr = (2 ppm x 10^{-6} BACT)(16.84 mmscf/hr)(lb mol/379.4 scf)(28 lb/lb mol)
= 2.48 lb/hr
lb/day = (4.05 lb/hr)(24 hr/day) = 59.52 lb/day

30 DA = 117 lb/day for Turbine 1
30 DA = 137 lb/day for Turbine 2

[Commissioning period, 2nd month]

PM_{10}: R1, lb/hr = (0.0066 lb/mmbtu AP 42) (1018 btu/scf HHV)(0.526 mmscf/hr) = 3.53 lb/hr
Note: The 3.53 lb/hr is adjusted to 3.89 lb/hr to be the same as R2, because the AEIS Data Sheet and NSR Data Summary Sheet will not recognize an R1 that is less than the R2.
lb/day = (3.89 lb/hr) (24 hr/day) = 93.36 lb/day

R2, lb/hr = (6.72 lb/mmscf from combustion + 0.67 lb/mmscf from 53% conversion of SOx to PM_{10} per applicant's data)(0.526 mmscf/hr) =
(7.39 lb/mmscf) (0.526 mmscf/hr) = 3.89 lb/hr
lb/day = (3.89 lb/hr)(24 hr/day) = 93.36 lb/day

30 DA = 81 lb/day for Turbines 1 and 2

[Normal operating emissions, applicant analysis for offset requirements (Scenario 1)]

ROG: R1, lb/hr = (3.6 ppm x 10^{-6})(16.84 mmscf/hr)(lb mol/379.4 scf)(16 lb/lb mol) = 2.56 lb/hr
lb/day = (2.56 lb/hr) (24 hr/day) = 61.44 lb/day

R2, lb/hr = (1.2 ppm x 10^{-6} manufacturer's guarantee)(16.84 mmscf/hr)
(lb mol/379.4 scf)(16 lb/lb mol) = 0.85 lb/hr
lb/day = (0.85 lb/hr)(24 hr/day) = 20.4 lb/day

30 DA = 59 lb/day for Turbine 1
30 DA = 49 lb/day for Turbine 2

[Commissioning period, 1st month]

SOx: R1, lb/hr = (0.60 lb/mmscf EFB)(0.526 mmscf/hr) = 0.32 lb/hr
lb/day = (0.32 lb/hr) (24 hr/day) = 7.68 lb/day

R2, lb/hr = (0.28 lb/mmscf per applicant)(0.526 mmscf/hr) = 0.15 lb/hr
lb/day = (0.15 lb/hr)(24 hr/day) = 3.6 lb/day

30 DA = 4 lb/day for Turbines 1 and 2

[Normal operating emissions, standard procedure for calculating maximum monthly emissions (Scenario 13)]

Condition A63.3 Monthly Limits

Condition A63.3 sets forth monthly limits for CO, PM_{10}, VOC, and SOx. These limits were derived as follows:

CO: [(117.36 lb/day + 137.07 lb/day)] (30 days) = 7633 lb/month
Daily emissions from commissioning second month.

PM_{10}: [(2438 lb/month + 2438 lb/month)] = 4876 lb/month
Maximum monthly emissions from Applicant Analysis for Offset Requirements

VOC: [(58.83 lb/day + 49.03 lb/day)] (30 days) = 3236 lb/month
Daily emissions from commissioning first month.

SOx: [(3.57 lb/day + 3.57 lb/day)] (30 days) = 214 lb/month
Daily emissions from AQMD Standard Procedure for Maximum Monthly Emissions.

b. Post-Condition Change, A/N 517249
Post-Condition Change, A/N 517250

The increase in emissions for the cold starts and the warm starts (now called non-cold), and the change in emissions for shutdowns, as well as the increase in the number of cold starts, will be evaluated to determine the effect on the 30-day averages.

30-Day Averages

As discussed above, the 30-day average for each criterion pollutant is based on the higher of the emissions for a commissioning month (first or second month) or a normal operating month.

1) Commissioning Emissions
Same as FDOC.

2) Normal Operating Emissions
The normal operating emissions were calculated using two different methodologies: *a)* AQMD Standard Procedure-Maximum Monthly Emissions, and *b)* Applicant Analysis for Offset Requirements.

a) AQMD Standard Procedure—Maximum Monthly Emissions

The following emissions calculations were performed pursuant to the standard procedure to predict the monthly maximum emissions for continuously operating equipment.

Operating Schedule: 52 wk/yr, 7 days/wk, 24 hr/day

The applications requested maximum of two startups and two shutdowns per day during a period not to exceed five days per year (within a 30 day window of time) during which required annual maintenance is conducted.

This translates to five cold start-ups, 5 warm start-ups and 10 shutdowns for a maximum emissions month. One month = 30 days = 720 hours. The remaining hours of operation (697.5 hrs as calculated below) will be in normal mode per Scenario 13.

Normal hrs of operation = 720 hrs – [five cold start (2 hrs) + 5 warm startups (1.5 hrs each) + 10 shutdowns (0.5 hr each)] = 697.5 hrs

NOx

NOx emissions calculations are provided here for informational purposes only. The number of RTCs required is calculated under the Rule 2005 analysis below.

Maximum monthly emissions = (122.8 lb/cold start-up)(5 cold start-up) + (51.3 lb/warm startup)(5 warm startups) + (4.5 lb/shutdown) (10 shutdowns) + (4.08 lb/hr normal operation)(697.5 hr) = 3761.3 lb

30 DA = 3761.3 lb/30 days = 125.37 lb/day → 125 lb/day

CO

Maximum monthly emissions = (204.8 lb/cold start-up)(5 cold start-up) + (59.9 lb/warm startup)(5 warm startups) + (10.8 lb/shutdown) (10 shutdowns) + (2.48 lb/hr normal operation)(697.5 hr) = 3161.3 lb

30 DA = 3161.3 lb/30 days = 105.37 lb/day → 105 lb/day

PM_{10}

Maximum monthly emissions = (4.37 lb/cold start-up)(5 cold start-up) + (3.65 lb/warm startup)(5 warm startups) + (0.92 lb/shutdown) (10 shutdowns) + (3.89 lb/hr normal operation)(697.5 hr) = 2762.58 lb

30 DA = 2762.58 lb/30 days = 92.09 lb/day → 92 lb/day

VOC
Maximum monthly emissions = (1.75 lb/cold start-up)(5 cold start-up) + (1.55 lb/warm startup)(5 warm startups) + (0.71 lb/shutdown) (10 shutdowns) + (0.85 lb/hr normal operation)(697.5 hr) = 616.48 lb

30 DA = 616.48 lb/30 days = 20.55 lb/day → 21 lb/day

SOx
Maximum monthly emissions = (0.2 lb/cold start-up)(5 cold start-up) + (0.16 lb/warm startup)(5 warm startups) + (0.03 lb/shutdown) (10 shutdowns) + (0.15 lb/hr normal operation)(697.5 hr) = 106.73 lb

30 DA = 106.73 lb/30 days = 3.56 lb/day → 4.0 lb/day

b) *Applicant Analysis for Offset Requirements*
Same as FDOC, because this analysis is applicable only to PM_{10} emissions.

** *There will be no change to existing condition A63.3 limiting the PM_{10} emissions for two turbines to 4876 lbs in any month (2 times 2438 lb/month-turbine).*

** *There will be no change to existing condition C1.4 limiting the fuel usage to 330 MM cubic ft in any one calendar month to ensure that the PM_{10} emissions shall not exceed 2438 lb/month per turbine.*

3) *Bases for 30-Day Averages*
As shown in the table below, the 30-day averages will **not** change as a result of the startup and shutdown related changes, except for NOx.

Pollutant	Turbine 1 30-day Avg, lb/day	Turbine 2 30-day Avg, lb/day	Bases for 30-day Averages
NOx	~~99~~ **125**	~~99~~ **125**	Normal operating emissions per standard procedure for calculating maximum monthly emissions (Scenario 13). **Note: The increase to the 30-day average is for informational purposes only as this is a RECLAIM facility.**
CO	117	137	Commissioning period, 2nd month
PM_{10}	81	81	Normal operating emissions per applicant analysis for offset requirements (Scenario 1)
VOC	59	49	Commissioning period, 1st month
SOx	4	4	Normal operating emissions per standard procedure for calculating maximum monthly emissions (Scenario 13)

R1 and R2 Calculations
Same as pre-condition change (FDOC).

Condition A63.3 Monthly Limits
Same as pre-condition change (FDOC).

RULE EVALUATION

The condition change to the two turbines expected to comply with all applicable SCAQMD rules and regulations as follows:

District Rules and Regulations
Rule 212—Standards for Approving Permits
Rule 2005(h) – RECLAIM Public Notice
Public notice is **not** required for this project, as discussed below.

- Rule 212(c)(1)-- Public notice is required for any new or modified equipment that may emit air contaminants located within 1000 feet from the outer boundary of a school. The proposed equipment will **not** be located within 1000 feet of the outer boundary of a school. The nearest K-12 school—Pacific Boulevard School, 2660 East 57th St, Huntington Park, CA 90255--is located 0.5 miles (2640 ft) away.

- Rule 212(c)(2)— Public notice is required for any new or modified facility which has on-site emission increases exceeding any of the daily maximums specified in subdivision (g) of this rule.

  The start-up and shutdown related changes result in an increase in CO emissions for normal operations. The 30-day average for CO and the monthly emissions limit for CO in condition A63.3, however, were based on commissioning emissions. The 30-day average for CO from commissioning is still significantly higher than the increased 30-day average for CO resulting from the start-up and shutdown related changes. Therefore, there is no increase for CO based on the 30-day average.

  Pursuant to Rule 2005, there is an increase in the number of NOx RTCs required by condition nos. I298.1 and I298.2. The daily maximum emission increases for NOx (29.05 lb/day as calculated below) resulting from the startup related changes, however, will not exceed the daily maximum threshold set forth in subdivision (g) of 40 lb/day NOx.

  The increase is calculated from the required RTCs per year as follows:

  (40,492 lbs/year-turbine - 35,263 lbs/year-turbine) (2 turbines) (year/360 days) = 29.05 lb/day

- Rule 212(c)(3)—There will not be an increase in toxic emissions from each CTG because the FDOC overestimated the emissions from each CTG by basing the toxic emissions on the equipment for the entire facility.

Rule 401 – Visible Emissions
Visible emissions are not expected from the CTGs under normal operation.

Rule 402 – Nuisance
Nuisance problems are not expected from the CTGs under normal operation.

Rule 407 – Liquid and Gaseous Air Contaminants
This rule applies to the CTGs and limits CO emissions to 2000 ppmv. The CO emissions from the two turbines will continue to be controlled by the oxidation catalysts to 2 ppmvd at 15% O2.

Rule 431.1 – Sulfur Content of Gaseous Fuels
The natural gas supplied to the turbine is expected to comply with the 16 ppmv sulfur limit (calculated as H_2S) specified in this rule, because commercial grade natural gas has an average sulfur content of 4 ppm.

Regulation XIII—New Source Review

- Rule 1303(a)—BACT
  Best Available Control Technology (BACT) is required for a modified source which results in an emission increase that is greater than 1 lb/day of any criteria pollutant (CO, VOC, PM_{10}, SOx as this is a RECLAIM facility), any ozone depleting compound, or ammonia. There are no increases in emissions. The CO emissions from commissioning is still significantly higher than the increased CO emissions resulting from the start-up and shutdown related changes. Further, these turbines already meet current BACT requirements.

- Rule 1303(b)(1)—Modeling
  Rule 1303(b)(1) requires the applicant to perform air dispersion modeling to substantiate that the new facility or modification which results in a net emission increase of any nonattainment air contaminant at a facility will not cause a violation, or make significantly worse an existing violation according to Table A-2 of the rule, of any state or national ambient air quality standards at any receptor location in the District. Rule 1303 requires modeling for CO and PM_{10}. (See Rule 2005(b)(1)(B), below, for discussion on NO_2 modeling.)

  Compliance determination is different for attainment and nonattainment pollutants. For attainment pollutants, such as CO, it should be demonstrated through modeling that the project impact plus the background concentration would not exceed the most stringent air quality standard. The ambient air quality standards for CO are for 1-hr averaging time and 8-hour averaging time. For non-attainment pollutants, such as PM_{10}, it should be demonstrated through modeling that the project impact will not cause exceedances of the significant change threshold in air quality concentration. The ambient air quality standards for PM_{10} are for 24-hour averaging time and the annual geometric mean.

  For the pre-condition change when the modeling was performed in 2002 for the FDOC, CO was a nonattainment pollutant and compliance was evaluated accordingly. Since CO is now an attainment pollutant, the post-condition change analysis will be performed accordingly.

  - **Pre-Condition Change**
    For the FDOC, the applicant provided modeling analysis for maximum project impacts for CO and PM_{10} using ISCST3 dispersion model (version 00101) and representative meteorological data from the Vernon meteorological station.

    The applicant provided a modeling analysis for one turbine, but was requested to provide a modeling analysis for two turbines operating simultaneously because Rule 1303(b)(1) requires compliance for a "new facility." The two turbines are the only equipment for the "new facility" that require modeling. The emergency ICE for the firewater pump is exempt from modeling analysis pursuant to Rule 1304(a)(4) (exempts emergency equipment). The cooling tower is exempt because it was not required to be permitted pursuant to Rule 219(d)(3) (exempts water

cooling towers meeting specific operating conditions). The applicant complied by doubling the impact of one turbine to predict the impact of two turbines, a conservative approach, for the worst case scenarios.

The maximum ground level impacts were evaluated for four scenarios--commissioning, startup, normal operation, and normal shutdown, each with different operating conditions and emission rates--to determine the worse case for impacts.

Four Scenarios—Maximum Emissions for Each Scenario

A description of the four scenarios and a tabulation of the maximum emissions for each scenario are presented below. The emissions are used as input data for the modeling analysis.

1. Commissioning Scenario

During commissioning, CO emissions are higher than normal because the combustors are not optimally tuned and/or the SCR/CO control may not be fully functional. For PM_{10}, the emission factor (lb/mmscf) remains constant and the commissioning emissions rate reflects the gas usage.

The following table sets forth the maximum hourly emissions for the commissioning of one turbine.

Pollutant	Emissions, lb/hr
CO	33.0[1]
PM_{10}	4.04[2]

Ref: Tables 3-7, 3-8 and Appendix B1 of Application for Permit to Construct

[1] The maximum hourly CO emissions occur under low load conditions when the control equipment is not tuned.

[2] The maximum hourly PM_{10} emissions occur under high load due to higher fuel use. Also, the PM_{10} emissions rate and modeling were based on the original estimate of 80% conversion of SO_2 to SO_3 through the CO catalyst and SCR, with SO_3 turning into PM_{10} (ammonium sulfate). The 80% conversion was later refined to 53% conversion, which was used for the emissions calculations above. Since the modeling based on the 80% conversion indicated compliance, it was not necessary to revise the modeling to base emissions on the 53% conversion.

Air dispersion modeling was performed to estimate 1-hour and 8-hour average concentrations. 1-hour and 8-hour concentrations were estimated using maximum 1-hour emission rates.

2. Startup Scenarios

The three types of startups vary in duration: CO (2 hour), warm (1.5 hour), and hot (1 hour). Startup is necessary to heat the HRSG and SCR/CO catalyst. During startup, CO emissions are higher than normal operation emissions because the control equipment has not reached optimal temperature to control to BACT level. The manufacturer provided the CO emissions data for different startup scenarios. For PM_{10},

the emission factor (lb/mmscf), estimated from AP-42, remains constant and the startup emissions rate reflects the gas usage.

The following table sets forth the maximum hourly emissions for startups for one turbine.

Pollutant	Emissions Cold Start	Emissions Warm Start	Emissions Hot Start
CO	24.30 lb/hr[1]	9.84 lb/hr	6.63 lb/hr
PM_{10}	4.08 lb/hr[2]	2.41 lb/hr	2.04 lb/hr

Ref: Appendices B2, B3 and B4 of Application for Permit to Construct

1 The maximum hourly CO emissions would occur under the first hour of cold startup when the catalyst is not warmed up.

2 The maximum hourly PM_{10} emissions occur during cold start due to higher fuel use. Since this modeling is based on the 80% conversion of SO_2 to SO_3 (SO_3 converts to ammonium sulfate (PM_{10})) indicated compliance, it was not necessary to revise the modeling to base emissions on the later more refined 53% conversion.

The maximum 1-hour emissions were used for the 1-hour average CO ambient air quality analysis.

3. Normal Operation Scenario

As discussed above under Emissions Calculations, the highest CO and PM_{10} hourly emissions occur under Scenario No. 13 (100% load, 38°F ambient temperature, duct burner on, evaporative cooler off). CO emissions are based on the BACT requirement of 2 ppmvd at 15% O2. PM_{10} emissions are estimated from the AP-42 emission factor and gas usage. PM_{10} emissions also include the conversion of SO_2 to PM_{10} in the SCR/CO catalyst system (see footnote 3 for the table below).

The following table sets forth the maximum hourly and annual emissions for normal operation for one turbine.

Pollutant	Maximum Emissions, lb/hr[1]	Annual Emissions, lb/yr[2]
CO	2.46	21,550
PM_{10}[3]	4.95	43,362

Ref: Appendix B5, S13.

1 Based on fuel consumption at full load.

2 Based on annual operation of 8760 hrs

3 Since this modeling based on the 80% conversion of SO_2 to SO_3 (SO_3 converts to ammonium sulfate (PM_{10})) indicated compliance, it was not necessary to revise the modeling to base emissions on the later more refined 53% conversion, which resulted in PM_{10} emissions rate of 3 89 lb/hr

4. Shutdown Scenario

During shutdown, the CO emissions are higher as the SCR/CO oxidation catalyst is being shut down. The shutdown emissions occur for the worse case at 38°F.

The following table sets forth the maximum hourly emissions for normal shutdown, calculated as the emissions during the 30-minutes of shutdown, for one turbine.

Pollutant	Emissions, lb/hr*
CO	4.75
PM_{10}	0.96

Ref: Appendix A6, SH1, Supplement for Application for Permit to Construct

Maximum Ground Level Impacts

For CO, the worst case 1-hour and 8-hour emissions occur when both turbines are in commissioning mode simultaneously. For PM_{10}, the worst case 24-hour PM_{10} emissions occur when both turbines are in normal operation under Scenario No. 13 (100% load, 38°F, duct burner on, evaporative cooler off). The applicant provided modeling analysis to determine the maximum ground level impact for one turbine, then doubled this impact to estimate the impact for two turbines for the worse cases only.

CO and PM_{10} Model Results

Pollutant	Averaging Period	Significant Change in Air Quality Concentration, µg/m³	Commissioning µg/m³		Startup µg/m³		Normal µg/m³		Shutdown µg/m³
			1 CT	2 CT[1]	1 CT	2 CT	1 CT	2 CT[2]	1 CT
CO	1-hour	1,100	45.8	**91.6**	30.2	60.4	2.4		5.8
	8-hour	500	19.6	**39.2**	ND	ND	0.9		ND
PM_{10}	24-hour	2.5	0.7	--	ND	ND	0.8	**1.6**	ND
	Annual Geometric Mean	1.0	ND[3]	ND	ND	ND	0.2	**0.4**	ND

Ref: Tables 9, 11, 12 & 13 of Auachment 1, Application for Permit to Construct

1 Worst case for CO.
2 Worst case for PM_{10}.
3 ND: Not done. According to the applicant, these cases were left out because their short durations were not relevant for the given averaging period.

Conclusion

As demonstrated in the table above, the maximum ground level impacts for the simultaneous commissioning or operation of the two turbines are below the significant change thresholds for both CO (1-hr and 8-hr) and PM_{10} (24-hr and annual geometric mean). Therefore, the CO and PM_{10} air quality impacts were determined to comply with Rule 1303.

- **Post-Condition Change**

The increase in maximum hourly CO emissions for cold and non-cold start-ups, as well as the increase to two startups per day, are evaluated to determine the effect on modeling results. PM_{10} emissions are proportional to fuel usage and will not be affected by the start-up and shutdown related changes.

Four Scenarios—Maximum Emissions for Each Scenario

1. Commissioning Scenario
   Same as FDOC.

2. Startup Scenarios
   For the FDOC, the CO model results for start-up were based on the maximum hourly emissions for cold start-up, because cold start emissions are higher than warm start and hot start emissions rates.

   The following table sets forth the increase in maximum hourly emissions for cold startup for **two** turbines to determine whether two turbines may be started up simultaneously.

Pollutants	Maximum Hourly Emissions [1]	
	FDOC	CEC Order No. 08-813-4 [2]
CO	24.3 lb/hr-turbine x 2 turbines = 48.6 lb/hr for two turbines	140 lb/hr for two turbines (equal to 70 lb/hr for one turbine)

[1] The maximum hourly CO emissions occur under the first hour of cold startup when the catalyst is not warmed up.
[2] The District has not previously evaluated the effect of the CEC's approved emissions limit increases.

3. Normal Operation Scenario
   Same as FDOC.

4. Shutdown Scenario
   The increase in shutdown emissions does not need to be evaluated because shutdown emissions are lower than startup emissions.

Maximum Ground Level Impacts

- *1-Hr Average*
  For the FDOC, the cold startup impact for 1 CT was 30.2 ug/m^3 based on 24.3 lb/hr. Based on the subsequent CEC Order, the maximum hour emissions for one turbine increased from 24.3 lb/hr to 70 lb/hr.

  The Petition filed by the City of Vernon on 12/19/07 to increase cold start-up emissions limits for NOx and CO did not include new modeling. The new model results were estimated by multiplying the original model results by the ratio of the proposed increased maximum hourly emissions rate to the original maximum hourly emissions rate. These new model results were provided by Consultant Krishna Nand, who had prepared the original project application and performed the original modeling. The CEC staff revised the limits proposed by the City and performed its own analysis in the Staff Analysis.

  For this revision, the same methodology will be used here to estimate the effect of the increase in maximum hourly emissions on ground level impact.

Two Turbines
(60.4 ug/m^3) (140 lb/hr / 48.6 lb/hr) = 174 ug/m^3

Since CO is now an attainment pollutant, the project impact plus the background concentration are required to not exceed the most stringent air quality standard. The above estimated increase in modeling results for two turbines is reflected in the table below. Program supervisor Tom Chico provided the background concentration for 1-hr CO for the Vernon area based on the peak concentrations at the downtown LA station (Station No. 087) over the three year period, 2009-2011.

CO Modeling Results (1-hr Average) for Two CTs

Scenario	**Modeled Concentration µg/m^3**	**Background Concentration µg/m^3**	**Modeled + Background Concentrations µg/m^3**	**State Standard µg/m^3**	**Federal Standard µg/m^3**
Commissioning	Same as FDOC.				
Startup	174	3450	3624	23,000	40,000
Normal	Same as FDOC.				
Shutdown	Not evaluated because shutdown emissions are lower than startup emissions.				

Conclusion
As shown the table above, the estimated CO air quality impact for two turbine startups added to the background CO concentration is less than the most stringent CO air quality standards for the 1-hr average. Therefore, the CO air quality impact was determined to continue to comply with Rule 1303 when two turbines are started up simultaneously.

- *8-hr Average*
  For the FDOC, modeling was not performed for the startup scenario for the 8-hour average because of the short duration of a cold startup and presumably because of the one start-up per day limit. For this revision, it is possible that a cold start-up (2 hours) and a non-cold start-up (1.5 hrs) may occur within the 8-hour period. Nevertheless, 3.5 hour continues to be a short duration relative to the 8-hour average.

- Rule 1303(b)(2)--Offsets
  Offsets for PM_{10}, VOC, and SOx are not required because the 30-day averages remain the same.

Rule 1401—New Source Review of Toxic Air Contaminants
Rule 1401 specifies limits for maximum individual cancer risk (MICR), cancer burden, and noncancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permits that emit toxic air contaminants (TACs). Rule 2005(i) requires compliance with Rule 1401 for NOx emissions.

- Pre-Condition Change

  For the FDOC, the applicant performed a modeling analysis using the ISCST3 model to determine the one-hour and annual average concentration of toxic air contaminants (TACs) for the operation of the facility, consisting of the two CTs and the cooling tower. The combustion of natural gas in the two CTs produces TACs. The drift of reclaimed water from the cooling tower produces TACs. The emergency ICE for the firewater pump is exempt pursuant to Rule 1401(g)(1)(F), which exempts emergency ICEs exempted under Rule 1304. The potential health risks were assessed using the ACE 2588 (Assessment of Chemical Exposure for AB2588) risk assessment model (Version 93288), which is consistent with CAPCOA Risk Assessment Guidelines (CAPCOA).

  Since Rule 1401 requires risk assessment on a permit unit basis, the risk assessment performed by the applicant for the entire facility, based on the total TACs from three permit units, overestimated the TAC impacts. The TACs were further overestimated because the TAC emission reductions resulting from the CO oxidation catalyst were not incorporated. Based on memo from Sims Roy (US EPA, Emission Standards Division) to EPA Docket A-95-51 titled "Hazardous Air Pollutant Emission Control Technology for New Combustion Turbines" dated December 30, 1999, a CO catalyst reduces formaldehyde emissions by approximately 85-90%.

  Based on preliminary emissions modeling of startup, normal operation, and shutdown scenarios, the applicant determined that the scenario resulting in the highest hourly and annual TAC emissions was determined to occur when both CTGs and duct burners, and the cooling tower are operating at full load for 8760 hours per year.

  The following table summarizes the hourly and annual TAC emissions for the modeling input and the predicted concentrations from the modeling.

TAC	Emission Factor, lb/mmscf	Max Hourly Emissions, lb/hr	Annual Emissions, lb/yr	Max 1-hr Concentration, $\mu g/m^3$	Max Annual Concentration, $\mu g/m^3$
Acetaldehyde	1.37E-01	7.21E-02	6.30E+02	1.31E-01	2.70E-06
Acrolein	1.89E-02	9.94E-03	8.68E+01	1.80E-02	N/A
Ammonia	7.23E+00	3.80E+00	2.37E+04	6.92E+00	N/A
Arsenic	N/A	5.73E-07	5.00E-03	1.21E-05	3.30E-03
Benzene	1.33E-02	7.00E-03	6.11E+01	1.27E-02	2.9E-05
Benz[a]anthracene (PAH)	2.26E-05	1.19E-05	1.04E-01	2.16E-05	1.10E-04
Benzo[a]pyrene (PAH)	1.39E-05	7.31E-06	6.39E-02	1.33E-05	1.10E-03
Benzo[b]fluoranthene (PAH)	1.13E-05	5.94E-06	5.19E-02	1.08E-05	1.10E-04
Benzo[k]fluoranthene (PAH)	1.10E-05	5.79E-06	5.05E-02	1.05E-05	1.10E-04
Chrysene (PAH)	2.52E-05	1.33E-05	1.16E-01	2.41E-05	1.10E-05
Dibenz[a,h]acridine	2.35E-05	1.24E-05	1.08E-01	2.25E-05	1.20E-03

(PAH)					
Indeno[1,2,3-cd]pyrene (PAH)	2.35E-05	1.24E-05	1.08E-01	2.25E-05	4.00E-04
Beryllium	N/A	6.51E-07	5.70E-03	1.37E-05	2.40E-03
Butadiene-1,3	N/A	---	---	1.21E-04	1.70E-04
Cadmium	N/A	1.02E-05	8.94E-02	2.16E-04	4.20E-03
Chromium (hex)	N/A	1.04E-05	9.11E-02	2.19E-04	1.50E-01
Copper	N/A	1.04E-05	9.11E-02	2.19E-04	N/A
Ethyl Benzene	1.79E-02	9.42E-03	8.23E+01	1.72E-02	N/A
Formaldehyde	9.17E-01	4.82E-01	4.21E+03	8.76E-01	6.00E-06
Lead	N/A	5.21E-06	4.56E-02	1.10E-04	N/A
Manganese	N/A	1.82E-05	15.94E-02	3.83E-04	N/A
Mercury	N/A	2.60E-08	2.00E-04	5.48E-07	1.80E+00
Naphthalene (PAH)	1.66E-03	8.73E-04	7.63E+00	1.59E-03	N/A
Nickel	N/A	3.64E-05	31.89E-02	7.67E-04	2.60E-04
Propylene Oxide	4.78E-02	2.51E-02	2.20E+02	4.57E-02	3.70E-06
Toluene	7.10E-02	3.73E-02	3.26E+02	6.79E-02	N/A
Xylene	2.61E-02	1.37E-02	1.20E+02	2.49E-02	N/A
Hexane	---	---	---	2.48E-01	N/A

The following table sets forth the results of the health risk assessment. The risk analysis shows that the MICR, Acute Hazard Index, and Chronic Hazard Index are less than the Rule 1401 standard. The facility will be in compliance with Rule 1401.

Health Risk Index	**Maximum Risk**	**Rule 1401 Standard**
Maximum Individual Cancer Risk (MICR)	0.863E-06	1.0E-06
Acute Hazard Index (HIA)	0.11	1.0
Chronic Hazard Index (HIC)	0.032	1.0

Ref: Table 5.16-4, Volume 1 of Application for Construction.

- Post-Condition Change

  For the FDOC, the scenario resulting in the highest hourly and annual TAC emissions was determined to occur when both CTGs and duct burners, and the cooling tower are operating at full load for 8760 hours per year.

  Since Rule 1401 requires risk assessment on a permit unit basis, the risk assessment performed by the applicant for the entire facility, based on the total TACs from three permit units, overestimated the TAC impacts. The TACs were further overestimated because the TAC emission reductions resulting from the CO oxidation catalyst were not incorporated.

  Since the previous Rule 1401 risk assessment substantially overestimated the effects from each turbine, the start-up and shut-down related changes will not increase the risk assessment results.

REGULATION XVII – Prevention of Significant Deterioration

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

Effective upon delegation by EPA, this regulation shall apply to preconstruction review of stationary sources that emit attainment air contaminants. On 3/3/03, EPA had rescinded its delegation of authority to the AQMD. The Permits to Construct for the original project were issued on 5/27/03, and the Permits to Operate on 1/31/08.

On 7/25/07, the EPA and AQMD signed a new "Partial PSD Delegation Agreement." The agreement is intended to delegate the authority and responsibility to the District for issuance of initial PSD permits and for PSD permit modifications where the applicant does not seek to use the emissions calculation methodologies promulgated in 40 CFR 52.21 (NSR Reform) but not set forth in AQMD Regulation XVII. The Partial Delegation agreement also did not delegate authority and responsibility to AQMD to issue new or modified PSD permits based on Plant-wide Applicability Limits (PALS) provisions of 40 CFR 52.21.

Rule 1703(a)(2) requires each permit unit to be constructed using BACT for each criteria air contaminant for which there is a net emission increase. At the time the permits for the original project were issued, the District was designated in attainment with sulfur dioxide and nitrogen dioxide. The permits for the original project were in compliance with BACT requirements.

Rule 1701(b)(1) provides that BACT requirements applies to a net emission increase of a criteria air contaminant from a permit unit at any source. The District is presently designated in attainment with NAAQS for sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead.

- Rule 1303(a)—BACT
  Best Available Control Technology (BACT) is required for a modified source which results in an emission increase that is greater than 1 lb/day of any criteria pollutant (CO, VOC, PM_{10}, SOx as this is a RECLAIM facility), any ozone depleting compound, or ammonia. There are no increases in emissions. The increased CO emissions resulting from the start-up and shutdown related changes are still significantly less than the CO emissions from commissioning.

- Rule 2005(b)(1)(A)—BACT
- Best Available Control Technology (BACT) is required for a modified source which results in an emission increase for that is greater than 1 lb/day of NOx. The increase in the number of startups per day and the increase in emissions for each cold start and non-cold start will result

in such an increase in emissions. These turbines, however, already meet current BACT requirements.

The rule tag "Rule 1703(a)(2) – PSD – BACT" for will be added to the "Emissions and Requirements" column and in the permit conditions for NOx BACT requirements.

Rule 1701(b)(2) provides that all of the requirements of this regulation apply, except those exempted in Rule 1704, to a new source or modification at an existing source where the increase in potential to emit is at least 100 or 250 tons of attainment air contaminants per year, depending on the source category. The 100 tpy threshold limit is applicable to this facility, because it is one of the 28 source categories subject to the 100 tpy threshold listed in Rule 1702(m)(1). The applicable source category is a fossil fuel-fired steam electric plants of more than 250 million BTU/hr. Because the increase in potential to emit for NOx emissions resulting from the start-up and shut-down related changes is below the 100 tons/yr threshold, *this facility is **not** subject to PSD requirements other than the BACT requirements required by Rule 1701(b)(1).*

Regulation XX—RECLAIM

- Rule 2005—New Source Review for RECLAIM
  - (b)(1)(A)—BACT
    Best Available Control Technology (BACT) is required for a modified source which results in an emission increase for that is greater than 1 lb/day of NOx. The increase in the number of startups per day and the increase in emissions for each cold start and non-cold start will result in such an increase in emissions. These turbines, however, already meet current BACT requirements.

  - (b)(1)(B)—Modeling
    As with Rule 1303(b)(1), Rule 2005(b)(1)(B) requires the applicant to perform air dispersion modeling to demonstrate that the operation of any emission source located at the new facility will not cause a violation nor make significantly worse an existing violation of the state or national ambient air quality standard at any receptor location in the District for NO_2 as specified in Table A-2 of the rule.

    For attainment pollutants, such as NO_2, the project impact plus the background concentration should not exceed the most stringent air quality standard. The ambient air quality standards for NO2 are for 1-hour averaging time and annual averaging time.

    - **Pre-Condition Change**
      For the FDOC, the applicant provided a modeling analysis for maximum project impacts for NO_2 using ISCST3 dispersion model (version 00101) and representative meteorological data from the Vernon meteorological station.

The maximum ground level impacts were evaluated for four scenarios--commissioning, startup, normal operation, and normal shutdown, each with different operating conditions and emission rates--to determine the worse case for impacts.

Four Scenarios—Maximum Emissions
A description of the four scenarios and a tabulation of the maximum emissions for each scenario are presented below. The emissions are used as input data for the modeling analysis.

1. Commissioning Scenario
   During commissioning, NOx emissions are higher than during normal operation because the combustors are not optimally tuned and/or the SCR/CO control may not be fully functional. The commissioning of each CTG will take place over 74 days. The commissioning for the two CTGs will take place over three months, with the commissioning of the second unit beginning 15 days after the start of the commissioning of the first unit and lasting through the 89th day of the commissioning period. Manufacturer data was used to estimate the NOx emissions.

2. Startup Scenarios
   During startup, NOx emissions are higher than during normal operation because the SCR has not reached optimal temperature to control to BACT level. NOx emissions are the highest during the first hour of cold startup at 38°F, per manufacturer data and fuel usage. For the worst case, the applicant proposed that both turbines will start up simultaneously.

3. Normal Operation Scenario
   As discussed above under Emissions Calculations, the highest NOx hourly emissions occur under Scenario No. 13 (100% load, 38°F ambient temperature, duct burner on, evaporative cooler off).

4. Shutdown Scenario
   During the 30-minute shutdown, the NOx emissions are higher as the SCR/CO oxidation catalyst is being shut down. The shutdown emissions occur for the worse case at 38°F.

A tabulation of the maximum hourly and annual NOx emissions for the four operating scenarios is presented in the table below. (As discussed below, the annual average model results would eventually be based on normal operation of 8760 hours with 56 cold starts and shutdowns, not the annual NOx emissions in the table below.)

Operating Scenario	NOx Emissions, 1-hr maximum, lb/hr	Annual NOx emissions, lb/yr
Commissioning CT01 [Day 16]	11.75[1] (1.48 g/s)	N/A
Commissioning CT02 [Day 1]	36.35[2] (4.58 g/s)	N/A
Startup, Cold CT01	13.10[3] (1.65 g/s)	63[7]
Startup, Cold CT02	13.10 (1.65 g/s)	63
Startup, Warm CT01	12.22[4] (1.54 g/s)	698[8]
Startup, Warm CT02	12.22 (1.54 g/s)	698
Normal CT01	4.07[5] (0.513 g/s)	26,200[9]
Normal CT02	4.07 (0.513 g/s)	26,200
Shutdown CT01	5.51[6] (0.694 g/s)	N/A
Shutdown CT02	5.51 (0.694 g/s)	N/A

1 CT01 NOx emissions on 16th day of commissioning, 1st hr cold start (Appendix B1, Appl for P/C-P/O)
2 CT02 NOx emissions on 1st day of commissioning, 1st hr warm start (W2, from Appendix B3, Appl for P/C-P/O)
3 NOx emissions of 1st hr cold start (C1, from Appendix B2, Appl for P/C-P/O)
4 NOx emissions of 1st hr warm start (W1, from Appendix B3, Appl for P/C-P/O)
5 NOx emissions (Scenario 13, normal operation, Appendix B5, Appl for P/C-P/O)
6 NOx emissions during 30 minutes of shutdown (SH1, Appendix B6, Appl for P/C-P/O)
7 NOx emissions for 4 cold startups per year (Table 2, Attachment 3, Appl for P/C-P/O)
8 NOx emissions for 52 warm starts per year (Table 2, Attachment 3, Appl for P/C-P/O)
9 NOx emissions based on 1314 hours of operation with duct burner on, 5782 hours with duct burner off, 4 cold starts and 52 warm starts per year (Table 2, Attachment 3, Appl for P/C-P/O)

Maximum Ground Level Impacts

The applicant performed a modeling analysis for each of the above scenarios to determine the maximum ground level NOx concentrations.

- *1-Hr Average*

  For the 1-hr average, the impact results for two turbines are presented in the following table.

NOx Modeling Results (1-hr Average) for Two CTs

Scenario	Modeled Concentration $\mu g/m^3$	Background Concentration $\mu g/m^3$	Modeled + Background Concentrations $\mu g/m^3$	State Standard $\mu g/m^3$	Federal Standard $\mu g/m^3$
Commissioning	39.4	338.4	377.8	470	---
Cold Startup	21.8	338.4	360.2	470	---
Normal Operation	5.9	338.4	344.3	470	---
Shutdown	9.2	338.4	347.6	470	---

Ref: Tables 7 and 8, Attachment 3, Appl. for P/C-P/O

- *Annual Average*
  For the annual average, the modeling was based on both turbines under normal operation for 8760 hours, including 56 starts (all cold starts to be conservative) and 56 shutdowns per year per turbine. The impact results are presented in the following table.

NOx Modeling Results (Annual Average) for Two CTs

Scenario	Modeled Concentration $\mu g/m^3$	Background Concentration $\mu g/m^3$	Modeled + Background Concentrations $\mu g/m^3$	State Standard $\mu g/m^3$	Federal Standard $\mu g/m^3$
Normal Operation/ Startup/Shutdown	0.4	80.5	80.9	100	100

Ref: Table 9, Attachment 3, Appl. for P/C-P/O

Conclusion
As shown the table above, the estimated NO_2 air quality impacts for two turbines added to the background NO_2 concentration are less than the most stringent NO_2 air quality standards for the 1-hr average and the annual average. Therefore, the NO_2 air quality impacts were determined to comply with Rule 2005.

- **Post-Condition Change**
  The increase in maximum hourly CO emissions for cold and non-cold start-ups, as well as the increase to two startups per day, are evaluated to determine the effect on modeling results.

Four Scenarios—Maximum Emissions

1. Commissioning Scenario
   Same as FDOC.

2. Startup Scenarios
   For the FDOC, the NOx model results for start-up were based on the maximum hourly emissions for cold start-up, because cold start emissions are higher than warm start and hot start emissions rates. For the worse case, the applicant proposed that both turbines will start up simultaneously.

3. Normal Operation Scenario
   Same as FDOC.

4. Shutdown Scenario
   The increase in shutdown emissions does not need to be evaluated because shutdown emissions are lower than startup emissions.

Maximum Ground Level Impacts

The effects of the increased maximum hourly emissions for cold start and the increases in cold and non-cold startup emissions are evaluated below.

- *1-Hr Average*

  The following table sets forth the increase in maximum hourly emissions for cold startup for **two** turbines.

Pollutants	Maximum Hourly Emissions [1]	
	FDOC	**CEC Order No. 08-813-4 [2]**
NOx	13.1 lb/hr-turbine x 2 turbines = 26.2 lb/hr for two turbines	55 lb/hr for two turbines (equal to 27.2 lb/hr for one turbine)

[1] The maximum hourly NOx emissions occur under the first hour of cold startup when the SCR is not warmed up.
[2] The District has not previously evaluated the effect of the CEC's approved emissions limit increases.

For the FDOC, the cold startup impact for two CTs was 21.8 ug/m^3 based on 26.2 lb/hr. Based on CEC Order, the maximum hour emissions for two turbines increased from 26.2 lb/hr to 55 lb/hr.

The effect of the increase in maximum hourly emissions on ground level impact are conservatively estimated by multiplying the pre-condition change ground level impact by the ratio of the post-condition maximum hourly emissions to the pre-condition maximum hourly emissions, as shown below.

Two Turbines

(21.8 ug/m^3) (55 lb/hr / 26.2 lb/hr) = 45.76 ug/m^3

The above estimated increase in modeling results is reflected in the table below. Program Supervisor Tom Chico provided the background concentrations for the state standard (representative 1-hr) and the federal standard (98th percentile 1-hr).

NOx Modeling Results (1-hr Average) for Two CTs

Scenario	Modeled Concentration µg/m^3	Background Concentration µg/m^3	Modeled + Background Concentrations µg/m^3	State Standard µg/m^3	Federal Standard µg/m^3
Commissioning	Same as FDOC.				
Cold Startup	~~21.8~~ **45.76**	~~338.4~~ **226**	~~360.2~~ **271.76**	~~470~~ **339**	
	45.76	**133**	**178.76**		**188**
Normal Operation	Same as FDOC.				
Shutdown	Not evaluated because shutdown emissions are lower than startup emissions.				

As shown the table above, the estimated NO_2 air quality impact for two turbines added to the background NO_2 concentration is less than the most stringent NO_2 air quality standards for the 1-hr average. Therefore, the NO_2 air quality impact was determined to continue to comply with Rule 1303 when two turbines are started up simultaneously.

- *Annual Average*

Pre-Condition Change, FDOC

The FDOC indicated the modeling was based on both turbines under normal operation for 8760 hours, including 56 starts (all cold starts to be conservative) and 56 shutdowns per year per turbine, but did not provide the actual annual NOx emissions. The annual emissions will be calculated here as follows:

> One year is 8760 hours. The remaining hours of operation (8620 hrs) will be in normal mode per Scenario 13.
>
> Normal hrs of operation = 8760 hrs – [56 startups (2 hrs) + 56 shutdowns (0.5 hr each)] = 8620 hrs
>
> Annual emissions = [(15.75 lb/cold start-up)(56 cold start-up) + (5.51 lb/shutdown) (56 shutdowns) + (4.08 lb/hr normal operation)(8620 hr)] [2 turbines] = 72,720.32 lb

Post Condition Change

Using the same methodology, the annual emissions with the startup and shutdown changes are calculated as follows:

> Annual emissions = [(122.8 lb/cold start-up)(56 cold start-up) + (4.50 lb/shutdown) (56 shutdowns) + (4.08 lb/hr normal operation)(8620 hr)] [2 turbines] = 84,596.80 lb

For the FDOC, the impact for two CTs was 0.4 ug/m^3 based on 72,720.32 lb/yr. Based on the CEC Order, the annual emissions for two turbines increased from 72,720.32 lb/yr to 84,596.80 lb/yr.

The effect of the increase in maximum hourly emissions on ground level impact are conservatively estimated by multiplying the pre-condition impact by the ratio of the post-condition maximum hourly emissions to the pre-condition maximum hourly emissions, as shown below .

Two Turbines
(0.4 ug/m^3) (84,596.80 lb/hr / 72,720.32 lb/hr) = 0.47 ug/m^3

The above estimated increase in modeling results is reflected in the table below. Program Supervisor Tom Chico provided the background concentrations for the annual standard.

NOx Modeling Results (Annual Average) for Two CTs

Scenario	**Modeled Concentration µg/m^3**	**Background Concentration µg/m^3**	**Modeled + Background Concentrations µg/m^3**	**State Standard µg/m^3**	**Federal Standard µg/m^3**
Normal Operation/ Startup/Shutdown	~~0.4~~ **0.47**	~~80.5~~ **52.8**	~~80.9~~ **53.27**	~~100~~ **57**	~~100~~ **100**

The estimated NO_2 air quality impacts added to the background NO_2 concentration are less than the most stringent NO_2 air quality standards for the annual average standard. Therefore, the NO_2 air quality impact was determined to continue to comply with Rule 1303.

Conclusion
As shown the tables above, the estimated NO_2 air quality impacts for two turbines added to the background NO_2 concentration is less than the most stringent NO_2 air quality standards for the 1-hr average and the annual average. Therefore, the NO_2 air quality impacts will continue to comply with Rule 2005.

- (b)(2)—Offsets
  - Pre-Condition Change
    Condition nos. I298.1 and I298.2 provide that the turbines 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. The amount of NOx RTCs required to be held for each CT is 35,263 lbs/year.

    The NOx RTCs were based on 4 cold startups, 52 warm startups, 56 shutdowns, and 8646 hr normal operation (as calculated below), emissions per event and emissions rates from the manufacturer.

    Hours of normal operation = 8760 hrs – [(4 cold start-up)(2 hr/cold start-up) +
    (52 warm start-up)(1.5 hr/warm start-up) + (56 shutdowns)(0.5 hr/shutdown)] = 8646 hr

(4 cold start-up)(15.75 lb/cold start-up) + (52 warm start-up)(13.48 lb/warm start-up) + (56 shut-downs)(5.51 lb/shutdown) + (8646 hr normal operation)(4.08 lb/hr controlled) = 35,263 lbs/year

- Post-Condition Change

  The NOx RTCs will be based on 30 cold startups, 26 warm startups, 56 shutdowns, and 8633 hr normal operation (as calculated below) and new emissions per event based on operating experience and emissions rates from the manufacturer.

  Hours of normal operation = 8760 hrs – [(30 cold start-up)(2 hr/cold start-up) + (26 warm start-up)(1.5 hr/warm start-up) + (56 shutdowns)(0.5 hr/shutdown)] = 8633 hr

  (30 cold start-up)(122.8 lb/cold start-up) + (26 warm start-up)(51.3 lb/warm start-up) + (56 shut-downs)(4.5 lb/shutdown) + (8633 hr normal operation)(4.08 lb/hr controlled) = 40,492 lbs/year

  Condition nos. I298.1 and I298.2 will be revised to reflect the 40,492 lbs/year.

  ***The facility will be required to provide 1073 lbs before the permits may be issued, as explained below.

  - Bicent is a Cycle 2 facility, with the current RECLAIM compliance year running from July 1, 2012 to June 30, 2013.

  - Section B, printed 3/7/13, indicates 80,600 lbs is available for this compliance year, as well as next compliance year. (26867 lbs + 26866 lbs + 26867 lbs = 80,600 lbs) Therefore, the analysis is the same, regardless of whether we issue the permits this compliance year or next compliance year.

  - Revised condition I298.1 will require 40492 lbs (was 35263 lbs) for Turbine 1. Revised condition I298.2 will require 40492 lbs (was 35263 lbs) for Turbine 2. Existing condition I298.3 continues to require 689 lbs for IC engine.

    Total RTCs required is 81673 lbs. Since 81,673 lbs is more than 80,600 lbs, the facility must purchase 1073 lbs before the permits may be issued. In addition, the facility is required to have 81673 lbs prior to each compliance year, but that is a compliance issue.

- Increase in Emissions

  For one turbine: (40,492 lbs/year-turbine - 35,263 lbs/year-turbine) = 5229 lb/yr

  For two turbines: (5229 lb/yr-turbine) (2 turbines) = 10,458 lb/yr

- (h)—Public Notice
  This requires compliance with Rule 212, see discussion above.

- (i)—Rule 1401 Compliance
  This requires compliance with Rule 1401, see discussion above.

Regulation XXX—Title V Permits

- Rule 3003—Applications
  This facility is in the RECLAIM program. The proposed project is considered as a "minor permit revision" for RECLAIM pollutants, non-RECLAIM pollutants, and hazardous air pollutants (HAPs) to the RECLAIM/Title V permit for this facility. Rule 3000(b)(12) specifies that a "minor permit revision" includes, but is not limited to any Title V permit revision that:

  - Rule 3000(b)(15)(A)(vi) – does not result in an increase in emissions of a pollutant subject to Regulation XIII – New Source Review (non-RECLAIM pollutants) or a hazardous air pollutant (HAP).

  - Rule 3000(b)(12)(A)(v) – does not result in an emission increase of any RECLAIM pollutant over the facility's starting Allocation plus the non-tradeable Allocation, or higher Allocation amount which has previously undergone a significant permit revision process.

  Non-RECLAIM Pollutants or HAPs
  The proposed project is not expected to result in an increase in emissions of a pollutant subject to Regulation XIII – New Source Review (non-RECLAIM pollutants) or a hazardous air pollutant (HAP).

  This proposed project is the fourth revision (Rev. 6) to the renewal Title V facility permit issued to this facility on September 9, 2009 as Rev. 2. (These revisions include the annual revisions to Section B: RECLAIM Annual Emission Allocation issued each July 1.)

  Permit Revisions, Emissions Changes and Cumulative Emissions
  The following table summarizes the permit revisions since the renewal Title V permit was issued, the emissions changes for each permit revision and the total cumulative emissions.

		Change in Emissions					
Facility Permit Rev No	**Revision**	**HAP**	**VOC**	**NOx***	**PM_{10}**	**SOx**	**CO**
3	First Permit Revision: Annual revision to Section B, issued 7/1/10	0	0	0*	0	0	0
4	Second Permit Revision: Annual revision to Section B, issued 7/1/11	0	0	0*	0	0	0
5	Third Permit Revision: Annual revision to Section B, issued 7/26/12—Includes change from I296 to I298.	0	0	0*	0	0	0
6	**Fourth Permit Revision under A/N 518851: A/N 517249, 517250—Startup and shutdown related changes.**	0	0	24.45*	0	0	0
	Cumulative Total	0	0	24.45*	0	0	0
	Maximum Daily—Significant Revision Emission Threshold	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

RECLAIM Pollutants

Rule 3000(b)(12)(A)(v) defines a "minor permit revision" as any permit revision that does not result in an emission increase of any RECLAIM pollutant over the facility's starting Allocation plus the non-tradeable Allocation, or higher Allocation amount which has previously undergone a significant permit revision process. Section B of the Title V permit shows that this facility's NOx starting Allocation (296,280 pounds) plus the non-tradable Allocation (7720 pounds) is 304,000 pounds. The proposed project is expected to result in an increase of 10,458 lbs/year of NOx emissions from this permit revision, less than the starting Allocation plus the non-tradable Allocations of 304,000 pounds. As a result, the proposed project is considered as a "minor permit revision" for RECLAIM pollutants.

Conclusion

The permit revision is a minor permit revision, which requires 45-day EPA review.

Federal Regulations

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

Subpart GG establishes requirements for stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr (10.7 gigajoules per hour), based on lower heating value, which commences construction, modification, or reconstruction after October 3, 1997 and are not subject to subpart KKKK. Subpart KKKK stationary combustion turbines with a heat input greater than 10 MMBtu/hr (10.7 gigajoules per hour), based on higher heating value, which commenced construction, modification or reconstruction after February 18, 2005. The construction for this facility commenced in 2003.

§60.332 The applicable standard for NOx is 110 ppm. The turbines continue to meet the BACT emissions limit of 2 ppm.

§60.333 The applicable standard for SOx is 150 ppm. Natural gas sulfur content continues to be about 4 ppm and the SOx emissions of 0.15 lb/hr (Scenario 13) are equivalent to less than 1 ppm.

§60.334 Measure of fuel consumption and continuous monitoring of NOx, SOx, and O_2 emissions. The NOx and CO CEMS continue to monitor emissions.

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

This regulation applies to gas turbines located at major sources of HAP emissions. A major source is defined as a facility with emissions of 10 tpy or more of a single HAP or 25 tpy or more of a combination of HAPs. This facility continues to not be a major source and the requirements of this regulation do **not** apply.

40 CFR Part 64 – Compliance Assurance Monitoring

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

The NOx and CO emissions are subject to BACT limits and other emissions standards. Each CTG is controlled with SCR and CO catalyst to meet the BACT limits for NOx, CO, and VOC. The NOx and CO CEMS continue to monitor emissions. Compliance with the VOC BACT limit continues to be assured by periodic source testing.

Regulation XXXI—Acid Rain Permit Program

Acid Rain provisions are designed to control SO2 and NOx emissions that could form acid rain from fossil fuel fired combustion devices in the electricity generating industry. Facilities are required to cover SO_2 emissions with "SO_2 allowances" or purchase of SO_2 offsets on the open market. The facility is also required to monitor SO_2 emissions through use of fuel gas constituent analysis or with the use of exhaust CEMS. The facility will continue to use gas meter in conjunction with natural gas composition analysis to comply with the acid rain requirements.

RECOMMENDATION

Since the proposed project is considered as a "minor permit revision", it is exempt from the public participation requirements under Rule 3006(b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility.

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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 3: ELECTRIC GENERATION, GAS TURBINE (MGS POWER ISLAND NO. 1)					

* (1) (1A) (1B) Denotes RECLAIM emission factor
(2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits
(10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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					
GAS TURBINE, NO.1, NATURAL GAS, ALSTOM, MODEL GTX100, 454.05 MMBTU/HR AT 38 DEGREES F (HHV) WITH A/N: GENERATOR, CTG NO. 1, 44.2 MW HEAT EXCHANGER, HRSG NO. 1	D27	C32 C33	NOX: MAJOR SOURCE**	**CO**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*], **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**, **NOX**: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]**; **NOX**: 110 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; **PM**: 0.01 GRAINS/SCF (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM**: 0.1 GRAINS/SCF (5) **[RULE 409, 8-7-1981]**; **PM**: 11 LBS/HR (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 150 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.3, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.1, K40.1

* (1) (1A) (1B) Denotes RECLAIM emission factor
(2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits
(10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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, STEAM TURBINE GENERATOR (STG), COMMON WITH HRSG NO. 2					
BURNER, DUCT BURNER, NATURAL GAS, SERVING HRSG NO. 1, 81.2 MMBTU/HR A/N:	D31	C32 C33	NOX: MAJOR SOURCE**	CO: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; CO: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; NOX: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]**; NOX: 110 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; PM: 0.01 GRAINS/SCF (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; PM: 0.1 GRAINS/SCF (5) **[RULE 409, 8-7-1981]**; PM: 11 LBS/HR (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; SO2: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; SOX: 150 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; VOC: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.3, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.1, K40.1, K67.4

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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					
CO OXIDATION CATALYST, NO.1, EMERACHEM, METAL MONOLITH, SERVING TURBINE NO.1, VOLUME 63 CU. FT. A/N: 482570	C32	D27 D31			
SELECTIVE CATALYTIC REDUCTION, NO. 1, SERVING TURBINE NO. 1, 537.1 CU.FT ; WIDTH: 10 FT 11 IN; HEIGHT: 47 FT 7 IN; LENGTH: 3 FT 6 IN WITH A/N: 482570 AMMONIA INJECTION	C33	D27 D31		**NH3**: 5 PPMV (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** ***RULE 1303(a)(1)-BACT, 12-6-2002***]	A195.4, D12.4, D12.5, D12.6, D29.3, E179.4, E179.5
STACK, NO. 1, SERVING TURBINE NO. 1, HEIGHT: 110 FT ; DIAMETER: 12 FT A/N:	D35				
System 4: ELECTRIC GENERATION, GAS TURBINE (MGS POWER ISLAND NO. 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

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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					
GAS TURBINE, NO. 2, NATURAL GAS, ALSTOM, MODEL GTX100, 454.05 MMBTU/HR AT 38 DEGREES F (HHV) WITH A/N: GENERATOR, CTG NO. 2, 44.2 MW HEAT EXCHANGER, HRSG NO. 2	D36	C40 C41	NOX: MAJOR SOURCE**	**CO**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]**; **NOX**: 110 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; **PM**: 0.01 GRAINS/SCF (5A) **[RULE 475, 10-8-1976;** *RULE 475. 8-7-1978*]; **PM**: 0.1 GRAINS/SCF (5) **[RULE 409, 8-7-1981]**; **PM**: 11 LBS/HR (5B) **[RULE 475, 10-8-1976;** *RULE 475. 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 150 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.3, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.2, K40.1

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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, STEAM TURBINE GENERATOR (STG), COMMON WITH HRSG NO. 1					
BURNER, DUCT BURNER, NATURAL GAS, SERVING HRSG NO. 2, 81.2 MMBTU/HR A/N:	D39	C40 C41	NOX: MAJOR SOURCE**	**CO**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 2 PPMV NATURAL GAS (4) **[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]**; **NOX**: 110 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; **PM**: 0.01 GRAINS/SCF (5A) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM**: 0.1 GRAINS/SCF (5) **[RULE 409, 8-7-1981]**; **PM**: 11 LBS/HR (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 150 PPMV NATURAL GAS (8) **[40CFR 60 Subpart GG, 2-24-2006]**; **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A63.3, A99.3, A99.4, A99.5, A195.1, A195.2, A195.3, A327.1, C1.4, D12.3, D29.2, D82.1, D82.2, E57.1, I298.2, K40.1, K67.4

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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					
CO OXIDATION CATALYST, NO. 2, EMERACHEM, METAL MONOLITH, SERVING TURBINE NO.2, VOLUME 63 CU. FT. A/N: 482571	C40	D36 D39			
SELECTIVE CATALYTIC REDUCTION, NO. 2, SERVING TURBINE NO. 2, 537.1 CU.FT., WIDTH: 10 FT 11 IN; HEIGHT: 47 FT 7 IN; LENGTH: 3 FT 6 IN WITH A/N: 482571 AMMONIA INJECTION	C41	D36 D39		**NH3: 5 PPMV (4) [RULE 1303(a) (1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A195.4, D12.4, D12.5, D12.6, D29.3, E179.4, E179.5
STACK, NO. 2, SERVING TURBINE NO. 2, HEIGHT: 110 FT ; DIAMETER: 12 FT A/N:	D43				
System 5: FIRE WATER PUMP DRIVER					

* (1) (1A) (1B) Denotes RECLAIM emission factor
(2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits
(10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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					
INTERNAL COMBUSTION ENGINE, EMERGENCY FIRE, DIESEL FUEL, DEUTZ, MODEL BF6M2012, FIRE WATER PUMP DRIVER, WITH AFTERCOOLER, TURBOCHARGER, 173 BHP A/N: 482576	D48		NOX: PROCESS UNIT**	**CO**: 0.4 GRAM/BHP-HR DIESEL (4) **[RULE 1303(a)(1) -BACT, 5-10-1996;** *RULE 1303(a) (1)-BACT, 12-6-2002*]; **NOX**: 3.9 GRAM/BHP-HR DIESEL (4) **[RULE 2005, 4-20-2001]; NOX** 469 LBS/1000 GAL DIESEL (1) **[RULE 2012, 12-5-2003; RULE 2012, 1-7-2005]; PM10**: 0.09 GRAM/BHP-HR DIESEL (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]; **VOC**: 0.1 GRAM/BHP-HR DIESEL (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]	B61.2, C1.5, D12.2, E298.3, K48.1, K67.2
Process 4: INORGANIC CHEMICAL STORAGE					
TANK, AQUEOUS AMMONIA, AMMONIA, 19% SOLUTION WITH VAPOR RETURN LINE, 8800 GALS; DIAMETER 10 FT ; HEIGHT: 15 FT A/N: 482573	D44				C157.1, E144.1
Process 5: OIL_WATER_SEPARATION					
OIL WATER SEPARATOR A/N: 482574	D45				
Process 6: Rule 219 Exempt Equipment Subject to Source Specific Rules					
RULE 219 EXEMPT EQUIPMENT, ARCHITECTURAL COATING	E47			**ROG**: (9) **[RULE 1113, 11-8-1996; RULE 1113, 7-13-2007; RULE 1171, 11-7-2003; RULE 1171, 2-1-2008]**	K67.1

* (1) (1A) (1B) Denotes RECLAIM emission factor
(2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits
(10) See section J for NESHAP/MACT requirements

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: 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
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: DEVICE ID INDEX

Device Index For Section D			
Device ID	**Section D Page No.**	**Process**	**System**
D27	3	1	3
D31	3	1	3
C32	4	1	3
C33	4	1	3
D35	4	1	3
D36	6	1	4
D39	6	1	4
C40	7	1	4
C41	7	1	4
D43	7	1	4
D44	8	4	0
D45	8	5	0
E47	8	6	0
D48	8	1	5

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

FACILITY CONDITIONS

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

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

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

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

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

[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 431.2, 9-15-2000]

F14.2 The operator shall not use diesel fuel containing sulfur compounds in excess of 0.05 percent by weight.

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

F16.2 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Purchase records of fuel oil and sulfur content of the fuel

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 431.2, 5-4-1990; RULE 431.2, 9-15-2000]

DEVICE CONDITIONS

A. Emission Limits

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

CONTAMINANT	EMISSIONS LIMIT
CO	Less than 7633 LBS IN ANY ONE MONTH
PM10	Less than 4876 LBS IN ANY ONE MONTH
VOC	Less than 3236 LBS IN ANY ONE MONTH
SOX	Less than 214 LBS IN ANY ONE MONTH

For the purposes of this condition, the limit(s) shall be based on the total combined emissions from equipment D27, D36 (both gas turbines) and D31, D39 (both duct burners).

The operator shall calculate the emissions for CO, after the CO CEMS certification, based on the readings from the certified CO CEMS. In the event CO CEMS is not operating, or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated in accordance with the approved CEMS plan.

The operator shall calculate the emissions by using monthly fuel use data and the following emission factors: PM10 7.397 lbs/mmscf, VOC 1.63 lbs/mmscf and SOx 0.28 lb/mmscf.

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

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

[Devices subject to this condition : D27, D31, D36, D39]

A99.3 The 2 PPM NOX emission limit(s) shall not apply during turbine startups and shutdowns.

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

For the purposes of this condition, a startup begins with the initiation of combustion, and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips, shall not exceed 150 minutes. NOx emissions for a cold start-up, with or without trip(s), shall not exceed 122.8 lbs.

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. NOx emissions for a non-cold startup, with or without trip(s), shall not exceed 51.3 lbs.

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. NOx emissions for a shutdown shall not exceed 4.5 lbs.

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

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

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]

[Devices subject to this condition : D27, D31, D36, D39]

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

A99.4 The 2 PPM CO emission limit(s) shall not apply during turbine startups and shutdowns.

For the purposes of this condition, a startup begins with the initiation of combustion, and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips, shall not exceed 150 minutes. CO emissions for a cold start-up, with or without trip(s), shall not exceed 204.8 lbs.

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. CO emissions for a non-cold startup, with or without trip(s), shall not exceed 59.9 lbs.

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. CO emissions for a shutdown shall not exceed 10.8 lbs.

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

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

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

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

[Devices subject to this condition : D27, D31, D36, D39]

A99.5 The 2 PPM VOC emission limit(s) shall not apply during turbine startups and shutdowns.

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

For the purposes of this condition, a startup begins with the initiation of combustion, and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips, shall not exceed 150 minutes. VOC emissions for a cold start-up, with or without trip(s), shall not exceed 1.75 lbs.

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. VOC emissions for a non-cold startup, with or without trip(s), shall not exceed 1.55 lbs.

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. VOC emissions for a shutdown shall not exceed 0.71 lbs.

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold startups per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

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

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

[Devices subject to this condition : D27, D31, D36, D39]

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

A195.1 The 2 PPMV NOX emission limit(s) is averaged over 1 hour at 15 percent oxygen, dry basis.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]

[Devices subject to this condition : D27, D31, D36, D39]

A195.2 The 2 PPMV CO emission limit(s) is averaged over 3 hours at 15 percent oxygen, dry basis.

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

[Devices subject to this condition : D27, D31, D36, D39]

A195.3 The 2 PPMV VOC emission limit(s) is averaged over 1 hour at 15 percent oxygen, dry basis.

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

[Devices subject to this condition : D27, D31, D36, D39]

A195.4 The 5 PPMV NH3 emission limit(s) is averaged over 1 hour at 15 percent oxygen, dry basis. The operator shall calculate and continuously record the ammonia slip concentration using the following:.

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BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

NH3 (ppmv) = [a - (b*c/1000000) * (1000000/b)], where.

a = ammonia injection rate (lbs/hr)/17 (lbs/lb-mole).

b = dry exhaust gas flow rate (lbs/hr)/29 (lbs/lb-mole).

c = change in measured NOx concentration across SCR (ppmv, dry basis).

The operator shall install and maintain a NOx analyzer to measure the SCR inlet NOx ppmv accurate to plus or minus 5 percent and calibrated at least once every 12 months. The NOx analyzer shall be installed and operated within 90 days of initial startup.

The calculated NH3 value may not be used for compliance determination without corroborative data using an approved reference method for determination of ammonia.

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

[Devices subject to this condition : C33, C41]

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 : D27, D31, D36, D39]

B. Material/Fuel Type Limits

B61.2 The operator shall only use diesel fuel containing the following specified compounds:

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

Compound	ppm by weight
Sulfur less than or equal to	15

[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 1470, 4-2-2004]

[Devices subject to this condition : D48]

C. Throughput or Operating Parameter Limits

C1.4 The operator shall limit the fuel usage to no more than 330 MM cubic feet in any one calendar month.

The purpose(s) of this condition is to ensure that the total PM10 emissions shall not exceed 2,438 lbs/month per turbine.

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

[Devices subject to this condition : D27, D31, D36, D39]

C1.5 The operator shall limit the operating time to no more than 199 hour(s) in any one year.

Operations for maintenance and testing as defined in Rule 1470 shall not exceed 50 hours in any one calendar year. The total annual operating time includes all operations including maintenance and testing.

[RULE 1110.2, 2-1-2008; RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996; RULE 1470, 6-1-2007; **RULE 2012, 5-6-2005]**

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : D48]

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

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition : D44]

D. Monitoring/Testing Requirements

D12.2 The operator shall install and maintain a(n) non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.

[RULE 1110.2, 11-14-1997; **RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996; RULE 2012, 12-7-1995;** RULE 2012, 3-16-2001; **RULE 2012, 5-11-2001]**

[Devices subject to this condition : D48]

D12.3 The operator shall install and maintain a(n) non-resettable totalizing fuel flow meter to accurately indicate the fuel usage of the turbine.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 2005, 6-3-2011]

[Devices subject to this condition : D27, D31, D36, D39]

D12.4 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH3).

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

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

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

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 2005, 4-9-1999; RULE 2005, 4-20-2001]

[Devices subject to this condition : C33, C41]

D12.5 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the exhaust at the inlet to the SCR reactor.

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 2005, 4-9-1999; RULE 2005, 4-20-2001]

[Devices subject to this condition : C33, C41]

D12.6 The operator shall install and maintain a(n) pressure gauge to accurately indicate the 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]**

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : C33, C41]

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

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

The test 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 District 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 demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limits.

The test shall be conducted 1) when the gas turbine and the duct burner are operating simultaneously at 100 percent of maximum heat input and 2) when the gas turbine is operating alone at 100 percent of maximum heat input.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit. For natural gas fired turbines only, this shall be demonstrated by the following test method:

a) Stack gas samples are extracted into Summa canisters, maintaining a final canister pressure between 400 - 500 mm Hg absolute

b) Pressurization of Summa canisters is done with zero gas analyzed/certified to containing less than 0.05 ppmv total hydrocarbons as carbon

c) Analysis of Summa canisters is per EPA Method TO-12 (with pre-concentration) and the temperature of the Summa canisters when extracting samples for analysis is not to be below 70 degrees F

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

[**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]

FACILITY PERMIT TO OPERATE
BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : D27, D31, D36, D39]

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
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limits.

The test shall be conducted at least once every calendar quarter for the first year and annually there after.

The test shall be conducted and the results submitted to the District within 60 days after the test date. The District shall be notified of the date and time of the test at least 10 days prior to the test.

[**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 : C33, C41]

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

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

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 to measure CO concentration over a 15 minutes averaging time period

[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 : D27, D31, D36, D39]

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.

[RULE 2012, 5-6-2005]

[Devices subject to this condition : D27, D31, D36, D39]

E. Equipment Operation/Construction Requirements

E57.1 The operator shall vent this equipment to CO oxidation/SCR control system whenever the turbine is in operation.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]**

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : D27, D31, D36, D39]

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 : D44]

E179.4 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- 3

Condition Number D 12- 4

[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 : C33, C41]

E179.5 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 month.

Condition Number D 12- 5

[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 : C33, C41]

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

I. Administrative

I298.1 This equipment shall not be operated unless the facility holds 40492 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds 40492 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005, 6-3-2011]

[Devices subject to this condition : D27, D31]

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BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

I298.2 This equipment shall not be operated unless the facility holds 40492 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds 40492 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005, 6-3-2011]

[Devices subject to this condition : D36, D39]

I298.3 This equipment shall not be operated unless the facility holds 689 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the start of operation, the facility holds 689 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

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BICENT (CALIFORNIA) MALBURG LLC

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[RULE 2005, 6-3-2011]

[Devices subject to this condition : D48]

K. Record Keeping/Reporting

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.

Source test results shall also include turbine fuel flow rate under which the test was conducted.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 6-3-2011]**

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

[Devices subject to this condition : D27, D31, D36, D39]

K48.1 The operator shall maintain records in a manner approved by the District, to demonstrate compliance with the following condition number(s):

Condition Number C 1- 5

Condition Number D 12- 2

[RULE 1110.2, 11-14-1997; **RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996]**

[Devices subject to this condition : D48]

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

For architectural applications where no thinners, reducers, or other VOC containing materials are added, maintain semi-annual records for all coating consisting of (a) coating type, (b) VOC content as supplied in grams per liter (g/l) of materials for low-solids coatings, (c) VOC content as supplied in g/l of coating, less water and exempt solvent, for other coatings.

For architectural applications where thinners, reducers, or other VOC containing materials are added, maintain daily records for each coating consisting of (a) coating type, (b) VOC content as applied in grams per liter (g/l) of materials used for low-solids coatings, (c) VOC content as applied in g/l of coating, less water and exempt solvent, for other coatings.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : E47]

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SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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

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

Date of operation, the elapsed time, in hour and the reason for operation

Maintenance and testing hours of operation

Hours of operation for emission testing to show rule compliance

Other operating hours

[RULE 1110.2, 11-14-1997; **RULE 1304(a)-Modeling and Offset Exemption, 6-14-1996;** RULE 1470, 3-4-2005]

[Devices subject to this condition : D48]

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

Operational status of the duct burner and its fuel usage

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 2005, 6-3-2011; RULE 2012, 5-6-2005]**

[Devices subject to this condition : D31, D39]