DOCKET
04-AFC-1
DATE DEC 21 2005
RECD. DEC 23 2005

sierra research

1801 J Street
Sacramento, CA 95814
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

December 21, 2005

William Pfanner
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: San Francisco Electric Reliability Project, Supplement A, 04-AFC-1

Dear Mr. Pfanner:

In issuing its Final Determination of Compliance (FDOC) for the proposed San Francisco Electric Reliability Project (SFERP), the Bay Area Air Quality Management District (BAAQMD) determined that the Best Available Control Technology-based particulate emission limit for the combustion gas turbines proposed for the project should be 2.5 pounds per hour (lb/hr), rather than the 3.0 lb/hr emission limit proposed by the applicant. The FDOC issued by the BAAQMD contains this lower limit, which reduces total allowable hourly, daily, and annual $PM_{10}/PM_{2.5}$ emissions from the facility.

The purpose of this letter is to provide revised $PM_{10}/PM_{2.5}$ emissions calculations for the project that incorporate the new, lower emission limit. The revised calculations are provided in Attachment A. With this letter, we are also providing proposed revisions to the air quality-related conditions of certification that were included in the preliminary staff assessment to incorporate this and other changes made by the BAAQMD in the FDOC. The proposed revisions to the conditions of certification are included as Attachment B.

The applicant has not revised the ambient air quality modeling analysis to incorporate the new emissions limitations. Because the original modeling analysis used higher emission rates than those reflected in the final permit conditions, the original results conservatively overestimate the impacts of the proposed project.

If you have any questions regarding this filing, please do not hesitate to call.

Sincerely,

Nancy Matthews

Nancy Matthews

PROOF OF SERVICE (REVISED 8-3-05) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 12-23-05

attachments

cc: Karen Kubick, SFPUC
John Carrier, CH2M Hill
Steve DeYoung
Service List

Appendix A
Revised Tables from the AFC

TABLE 8.1-17
Maximum Emission Rates—Each CTG

Pollutant	ppmv @ 15% O_2	lb/MMBtu	lb/hr
NO_x	2.5[a]	0.009	4.41
SO_2[b]	0.15	0.00092	0.45
CO	4.0[a]	0.0088	4.30
POC	2.0[a]	0.0025	1.23
PM_{10}	n/a	n/a	~~3.0~~ 2.5

Notes:

[a] NO_x, CO and POC emission rates exclude startups and shutdowns (see Table 8.1-18).

[b] Based on annual average natural gas sulfur content of 0.33 gr/100 scf.

TABLE 8.1-19
Maximum Emissions from New Equipment

Emissions/Equipment	NO_x	SO_2	CO	POC	PM_{10}
Maximum Hourly Emissions					
CTGs	120.0	1.3	30.0	6.0	~~9.0~~ 7.5
Cooling Towers	–	–	–	–	<0.1
Total, pounds per hour	**120.0**	**1.3**	**30.0**	**6.0**	**~~9.0~~ 7.5**
Maximum Daily Emissions					
CTGs	744.6	32.3	378.0	97.8	~~216.0~~ 180.0
Cooling Towers	–	–	–	–	0.9
Total, pounds per day	**744.6**	**32.3**	**378.0**	**97.8**	**~~216.9~~ 180.9**
Maximum Annual Emissions, tpy					
CTGs	39.8	2.7	27.9	7.7	~~18.0~~ 15.0
Cooling Towers	–	–	–	–	0.2
Total, tons per year	**39.8**	**2.7**	**27.9**	**7.7**	**~~18.2~~ 15.2**

TABLE 8.1-26
PSD Significant Emissions Levels

Pollutant	Facility Emissions (tpy)	PSD Threshold (tpy)	Significant?
NO_X	39.8	250	No
SO_2	2.7	250	No
POC	7.7	250	No
CO	27.9	250	No
PM_{10}[a]	~~18.2~~ 15.2	250	No

[a] PM_{10} emissions shown include cooling tower.

TABLE 8.1-30
Facility Best Available Control Technology Requirements

Pollutant	Applicability Level	Facility Emission Level (lbs/day)	BACT Required?
Criteria Pollutants: BAAQMD Regulation 2-2-301.1			
POC	10 lbs/day	97.8	yes
NPOC	10 lbs/day	–	no
NO_X	10 lbs/day	744.6	yes
SO_2	10 lbs/day	32.3	yes
PM_{10}	10 lbs/day	~~216.9~~ 180.9	yes
CO	10 lbs/day	378.0	yes
Noncriteria Pollutants: BAAQMD Regulation 2-2-301.2			
Lead	3.2 lbs/day	neg.	no
Asbestos	0.04 lbs/day	neg.	no
Beryllium	0.002 lbs/day	neg.	no
Mercury	0.5 lbs/day	neg.	no
Fluorides	16 lbs/day	neg.	no
Sulfuric Acid Mist	38 lbs/day	neg.	no
Hydrogen Sulfide	55 lbs/day	neg.	no
Total Reduced Sulfur	55 lbs/day	neg.	no
Reduced Sulfur Compounds	55 lbs/day	neg.	no

TABLE 8.1-31
BAAQMD Offset Requirements and Facility Emissions

Pollutant	Applicable Facility Size	Emission Increase	Facility Emissions	Regulation	Offsets Required
POC	10 tpy	Any increase	7.7 tpy	2-2-302	No
NO_x	10 tpy	Any increase	39.8 tpy	2-2-302	Yes
PM_{10}	100 tpy	1 tpy net increase	~~18.2~~ 15.2 tpy	2-2-303	No
SO_2	100 tpy	1 tpy net increase	2.7 tpy	2-2-303	No

TABLE 8.1-33
BAAQMD PSD Requirements Applicable to 100 tpy Fossil Fuel Fired Power Plants

Pollutant	PSD Facility Applicability Level	Modeling Threshold Level	Emissions from New Facility	Modeling Required	Applicable BAAQMD Regulation
NO_X	100 tpy	100 tpy	39.8 tpy	No	2-2-304.2
SO_2	100 tpy	100 tpy	2.7 tpy	No	2-2-304.2
PM_{10}[a]	100 tpy	100 tpy	~~18.2~~ 15.2 tpy	No	2-2-304.3
CO	100 tpy	100 tpy	27.9 tpy	No	2-2-305.1
POC	100 tpy	not required	7.7 tpy	–	–

[a] All particulate matter from the combustion turbines is assumed to be emitted as PM_{10}.

Table 8.1A-1
Emissions and Operating Parameters for New Turbines
San Francisco Electric Reliability Project
PM10 emission rate rev 12/05

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
	36 deg full load, no chilling	59 deg full load, w/chilling	80 deg full load, w/chilling	36 deg 50% load	59 deg 50% load	80 deg 50% load
Ambient Temp, F	36	59	80	36	59	80
GT Load, %	100	100	100	50	50	50
GT heat input, MMBtu/hr (HHV)	484.6	487.3	487.2	273.8	274.0	272.2
Stack flow, lb/hr	1,128,201	1,107,509	1,107,154	745,437	768,865	787,074
Stack flow, dscfm	228,475	222,850	222,710	152,936	158,413	162,980
Stack flow, acfm	619,922	620,308	620,356	412,259	411,857	407,798
Stack temp, F	805	826	826	819	782	744
Stack exhaust, vol %						
O2 (dry)	14.66	14.47	14.46	15.64	15.82	16.00
CO2 (dry)	3.59	3.70	3.70	3.03	2.93	2.83
H2O	10.33	11.18	11.22	8.73	8.16	7.48
Emissions						
NOx, ppmvd @ 15% O2	2.50	2.50	2.50	2.50	2.50	2.50
NOx, lb/hr	4.39	4.41	4.41	2.48	2.48	2.47
NOx, lb/MMBtu	0.0091	0.0090	0.0091	0.0091	0.0091	0.0091
SO2, ppmvd @ 15% O2	0.182	0.182	0.182	0.182	0.182	0.182
SO2, lb/hr	0.45	0.45	0.45	0.25	0.25	0.25
SO2, lb/MMBtu	0.00092	0.00092	0.00092	0.00092	0.00092	0.00092
CO, ppmvd @ 15% O2	4.00	4.00	4.00	4.00	4.00	4.00
CO, lb/hr	4.28	4.30	4.30	2.42	2.42	2.40
CO, lb/MMBtu	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088
VOC, ppmvd @ 15% O2	2.00	2.00	2.00	2.00	2.00	2.00
VOC, lb/hr	1.22	1.23	1.23	0.69	0.69	0.69
VOC, lb/MMBtu	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
PM10, lb/hr	***2.5***	***2.5***	***2.5***	***2.5***	***2.5***	***2.5***
PM10, lb/MMBtu	***0.0052***	***0.0051***	***0.0051***	***0.0091***	***0.0091***	***0.0092***
PM10, gr/dscf	***0.001275***	***0.001308***	***0.001308***	***0.001908***	***0.001842***	***0.001792***
NH3, ppmvd@15% O2	10.0	10.0	10.0	10.0	10.0	10.0
NH3, lb/hr	6.50	6.54	6.53	3.67	3.67	3.65

Table 8.1A-4
Detailed Calculations for Maximum Hourly, Daily and Annual Criteria Pollutant Emissions
San Francisco Electric Reliability Project
PM10 emission rate rev 12/05

	Base Load			Startup/Shutdown		NOx			SO2	CO			POC		PM10
	max. hour	hrs/day	hrs/yr	hrs/day	hrs/yr	Maximum lb/hr	Ann. Avg. lb/hr	Startup/Shutdown lb/hr (1)	lb/hr	Maximum lb/hr	Ann. Avg. lb/hr	Startup lb/hr	Maximum lb/hr	Startup lb/hr (1)	lb/hr
Each Turbine	1	20	3750	4	250	4.41	4.41	40.0	0.45	4.30	4.30	10.00	1.23	2.00	***2.5***

	NOx			SO2			CO			POC			PM10		
	Max lb/hr	Max lb/day	Total tpy	Max lb/hr	Max lb/day	Total tpy	Max lb/hr	Max lb/day	Total tpy	Max lb/hr	Max lb/day	Total tpy	Max lb/hr	Max lb/day	Total tpy
Turbine 1	40.0	248.2	13.3	0.45	10.8	0.9	10.0	126.0	9.3	2.0	32.6	2.6	2.5	60.0	***5.0***
Turbine 2	40.0	248.2	13.3	0.45	10.8	0.9	10.0	126.0	9.3	2.0	32.6	2.6	2.5	60.0	***5.0***
Turbine 3	40.0	248.2	13.3	0.45	10.8	0.9	10.0	126.0	9.3	2.0	32.6	2.6	2.5	60.0	***5.0***
Total, 3 Turbines	120.0	744.6	39.8	1.35	32.3	2.7	30.0	378.0	27.9	6.0	97.8	7.67	7.5	180.0	***15.0***
Cooling Tower	–	–	–	–	–	–	–	–	–	–	–	–	0.04	0.9	0.2
Facility Total	120.0	744.6	39.8	1.3	32.3	2.7	30.0	378.0	27.9	6.0	97.8	7.7	7.5	180.9	***15.2***

Appendix B
Proposed Revisions to PSA Conditions of Certification
Air Quality

AQ-SC11 The project owner shall provide additional ~~5~~ 4 TPY of PM2.5 emission reduction credits by subsidizing the replacement or modification (blocking chimneys) of wood stoves or fireplaces.

Verification: At least 30 days prior to the start of any site clearing or ground disturbance activities, the project owner shall provide the CPM, for approval, a final plan to acquire ~~5~~ 4 TPY of PM2.5 emission reduction credits. The wood stove and fireplace replacement or modification programs must start after the plan approval, and no later than 60 days prior to initial startup.

AQ-SC12 In lieu of compliance with Condition **AQ-SC11**, the project owner shall provide ~~45~~ 36 TPY of SOx emission reduction credits acquired in the local Hunters Point and/or Potrero areas to provide an annual equivalent of ~~15~~ 12 TPY of PM2.5.

Verification: The project owner shall submit to the CPM a list of ERCs to be surrendered to the District at least 60 days prior to initial startup.

AQ-18 The owner/operator of the Gas Turbine Combustors (S-1, S-2, and S-3) shall comply with requirements (a) through (h) below under all operating scenarios, except requirements (a) through (h) do not apply during a gas turbine start-up or shutdown.

(g) Sulfur dioxide (SO2) mass emissions at each P-1, P-2, and P-3 shall not exceed ~~0.0027~~ 0.0028 lb/MM Btu of natural gas fired. (Basis: BACT)

(h) Particulate matter (PM10) mass emissions at each P-1, P-2, and P-3 shall not exceed ~~3~~ 2.5 pounds per hour. (Basis: BACT)

AQ-19 The owner/operator shall not exceed the regulated air pollutant mass emission rates from each of the Gas Turbine Combustors (S-1, S-2, and S-3) during a start-up or a shutdown as established below. (Basis: BACT)

	~~Cold~~ Start-Up (lb/hour)	Shutdown (lb/hour)
Oxides of Nitrogen (as NO2)	40	40
Carbon Monoxide (CO)	10	10
Precursor Organic Compounds (as CH4)	2	2

AQ-20 The owner/operator of the Gas Turbines (S-1, S-2 and S-3) shall not ~~operate more than two startups and shutdowns per turbine in any one day~~ exceed the following daily limits for each turbine during any one calendar day. (Basis: Cumulative Increase)

	Daily Limits, lb/day
Oxides of Nitrogen (as NO_2)	283
Carbon Monoxide (CO)	132
Precursor Organic Compounds (as CH_4)	34
Particulate Matter	60
Sulfur Dioxide (SO_2)	33
Ammonia (NH_3)	156

AQ-21 The owner/operator shall ensure that the cumulative combined emissions from the Gas Turbine Combustors (S-1, S-2, and S-3) do not exceed the following limits during any consecutive twelve-month period, including emissions generated during gas turbine start-ups and shutdowns:

- 39.8 tons of NOx (as NO2) per rolling 365 day period;
- 27.9 tons of CO per rolling 365 day period;
- 7.7 tons of POC (as CH4) per rolling 365 day period;
- ~~18~~ 15 tons of PM10 per rolling 365 day period; and
- 2.7 tons of SO2 per rolling 365 day period.

AQ-25 As specified below, the owner/operator shall calculate and record the following data:

- total Heat Input Rate for every clock hour and the average hourly Heat Input Rate ~~for every rolling 3-hour period~~.
- on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and all three sources (S-1, S-2, and S-3).
- the average NOx mass emissions (as NO2), CO mass emissions, and corrected NOx and CO emission concentrations for every clock hour and for every rolling 3-hour period.
- on an hourly basis, the cumulative total NOx mass emissions (as NO2) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine (S-1, S-2, and S-3) combined.
- For each calendar day, the average hourly Heat Input Rates, Corrected NOx emission concentrations, NOx mass emissions (as NO2), corrected CO emission concentrations, and CO mass emissions for each Gas Turbine combined.

- On a daily basis, the cumulative total NOx mass emissions (as NO2) and cumulative total CO mass emissions, for the previous consecutive twelve month period for all three sources (S-1, S-2, and S-3) combined.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE SAN FRANCISCO ELECTRIC RELIABILITY PROJECT

Docket No. 04-AFC-01
PROOF OF SERVICE
Revised 8/03/05

DOCKET UNIT

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Sacramento, CA 95814-5512

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APPLICANT

Barbara Hale, Power Policy Manager
San Francisco Public Utilities Commission
1155 Market Street, 4th Floor
San Francisco, CA 94102
BHale@sfwater.org

Karen Kubick
Applicant Project Manager
SF Public Utilities Commission
1155 Market St., 8th Floor
San Francisco, CA 94103
kkubick@sfwater.org

APPLICANT'S CONSULTANTS

Steve De Young
De Young Environmental Consulting
4155 Arbolado Drive
Walnut Creek, CA 94598
steve4155@astound.net

John Carrier
CH2MHill
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2943
jcarrier@ch2m.com

COUNSEL FOR APPLICANT

Jeanne Sole
San Francisco City Attorney
City Hall, Room 234
1 Dr. Carlton B. Goodlet Place
San Francisco, CA 94102-4682
Jeanne.sole@sfgov.org

INTERESTED AGENCIES

Emilio Varanini III
Special Counsel
California Power Authority
717 K Street, Suite 217
Sacramento, CA 95814
drp.gene@spcglobal.net

Electricity Oversight Board
770 L Street, Suite 1250
Sacramento, CA 95814

*** Donna Jordan**
CA Independent System Operator
151 Blue Ravine Road
Folsom, CA 95630
djordan@caiso.com

*** Dept. of Water Resources**
SERS
Dave Alexander
3301 El Camino Avenue, Ste. 120
Sacramento, CA 95821-9001

INTERVENORS

Jeffrey S. Russell
Vice President, West Region Operations
Mirant California, LLC
1350 Treat Blvd., Suite 500
Walnut Creek, CA 94597
Jeffrey.russell@mirant.com

Michael J. Carroll
Latham & Watkins LLP
650 Town Center Drive, Suite 2000
Costa Mesa, CA 92626
michael.carroll@lw.com

Potrero Boosters Neighborhood Association
Dogpatch Neighborhood Association
Joseph Boss
934 Minnesota Street
San Francisco, CA 94107
joeboss@joeboss.com

San Francisco Community Power
c/o Steven Moss
2325 Third Street # 344
San Francisco, CA 94107
steven@sfpower.org

Californians for Renewable Energy, Inc. (CARE)
Michael E. Boyd, President
5439 Soquel Drive
Soquel, California 95073
michaelboyd@sbcglobal.net

Lynne Brown – Member, CARE
Resident, Bayview Hunters Point
24 Harbor Road
San Francisco, California 94124
L_brown123@yahoo.com

Robert Sarvey
501 West Grantline Road
Tracy, CA 95376
sarveyBob@aol.com

DECLARATION OF SERVICE

I, Evelyn M Johnson declare that on December 27, 2005, I deposited copies of the attached Letter from Letter from Nancy Matthews, Sierra Research, Re: Revised $PM_{10}/PM_{2.5}$ emissions calculations for the project that incorporate the new, lower emission limit for San Francisco Electric Reliability Project, in the United States mail at Sacramento, California with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. I declare under penalty of perjury that the foregoing is true and correct.

Evelyn M Johnson
[signature]

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Hearing Officer
MS-9

Bill Pfanner
Project Manager
MS-15

Dick Ratliff
Staff Counsel
MS-14

Margret J. Kim
Public Adviser
MS-12