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CH2MHILL

November 13, 2006

DOCKET
06-AFC-3
DATE NOV 13 2006
RECD. NOV 13 2006

Mr. Bill Pfanner
Project Manager
Systems Assessment and Facility Siting Division
California Energy Commission
1516 9th Street, MS 15
Sacramento, CA 95814-5512

Subject: LSP South Bay, LLC - South Bay Replacement Project AFC (06-AFC-3): Docketing of November 10, 2006 Letter to San Diego County Air Pollution Control District: CO, NOx and VOC BACT Levels

Dear Mr. Pfanner:

On behalf of LSP South Bay, LLC, please find enclosed 12 copies and one original of copy of the November 10, 2006 letter from Sierra Research to the San Diego County Air Pollution Control District regarding the Best Available Control Technology (BACT) levels for CO, NOx and VOC for the South Bay Replacement Project (SBRP). For docketing purpose, also find attached the Proof of Service declaration.

We will coordinate this submittal with the Commission's Docket Unit.

LSP South Bay, LLC appreciates the continued opportunity to work with CEC staff on this important project.

Sincerely,
CH2M HILL

for Robert C. Mason
Project Director

Attachments

cc: Docket Unit - California Energy Commission
Kevin Johnson, LSP South Bay, LLC

November 10, 2006

sierra research

1801 J Street
Sacramento, CA 95814
Tel: (916) 444-6666
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Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

Camqui T. Nguyen
Air Pollution Control Engineer
San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131

Subject: CO, NOx, and VOC BACT Levels for the Proposed South Bay Replacement Project (SBRP)

Dear Ms. Nguyen:

We agree to modify the project's emissions to be consistent with the emission levels for the SBRP gas turbines/HRSGs listed in the SDAPCD's October 9, 2006 email. These levels are 2.0 ppmvd @ 15% O_2 (ppmc) for CO, 2.0 ppmc for NOx, and 1.5 ppmc for VOC. Enclosed as Attachment 1 is a table listing the projects reviewed by the SDAPCD to finalize these BACT levels. With the exception of the 1-hour averaging period for CO, we also agree with the averaging period for NOx and VOC. As shown in the enclosed Table 2-1 (Attachment 2), for nearly all of the F-Class power plants approved by the California Energy Commission (CEC) during the past 5 years, the averaging period for CO has been 3 hours rather than 1 hour. Consequently, due to the stringent CO level that will be required for this project, we request that this limit be based on a 3-hour average to be consistent with past practice in California.

The SDAPCD has also requested that we revise the annual emission estimates for the SBRP to account for the above CO and VOC BACT levels. Consequently, enclosed as Attachment 3 are the emission summary tables from the SBRP Application for Certification/permit application package that have been revised to reflect the new CO and VOC BACT levels (Tables 8.1B-1, 8.1B-4, 8.1B-5, and 8.1G-1).

If you have any questions or need any additional information, please do not hesitate to contact us.

Sincerely,

Eric Walther
Managing Partner

Attachments

cc: Kevin R. Johnson, LS Power Generation, LLC
Robert Mason, CH2M Hill
Bill Pfanner, California Energy Commission

ATTACHMENT 1

LIST OF PROJECTS CITED BY THE SDAPCD FOR CO AND VOC BACT LEVELS

TABLE 1-1
PROJECTS CITED BY SDAPCD FOR BACT LEVELS

Project	Equipment	Project Status	Control Systems	NOx Permit Limit (ppm @ 15% O2)	CO Permit Limit (ppm @ 15% O2)	VOC Permit Limit (ppm @ 15% O2)
Sithe Mystic Development, Suffolk MA	Mitsubishi 501G GT, 253 MMBtu/hr DB	Operating	DLN, SCR, Ox. Cat	2 ppm (1-hr)	2 ppm (1-hr)	1.7 ppm (1-hr with DB)
Diamond Wanapa, Umatilla OR	F-Class GT, 606 MMBtu/hr DB	Under Construction	DLN, SCR, OxCat	2 ppm (3-hr)	2 ppm (3-hr)	No permit limit*
Area Energy (Western Midway Sunset Project), Kern CA	Westinghouse 501F GT, with DB (DB rating not listed in CEC Final Decision)	On-hold	DLN, SCR, OxCat	2.5 ppm (1-hr)	6 ppm (3-hr)	1.5 (3-hr with DB)
SDAPCD BACT Determination for SBRP	GE 7FA GT, 574 MMBtu/hr DB	Under Review	DLN, SCR, OxCat	2 ppm (1-hr)	2 ppm (1-hr)	1.5 ppm (1-hr)

Notes: * PSD permit application evaluation shows VOC level of 0.0081 lbs/MMBtu which equals approx. 3.25 ppm @ 15% O2.

ATTACHMENT 2

CO LIMIT AVERAGING TIMES – CALIFORNIA F-CLASS POWER PLANTS
(APPROVED BY THE CEC FROM 2001 TO 2006)

TABLE 2-1
CO LIMITS FOR F-CLASS POWER PLANTS IN CALIFORNIA
(PROJECTS APPROVED BY THE CEC FROM 2001 TO 2006)

Project	CO Limit (ppmv @ 15% O_2)	CEC Project Approval Date
Blythe Energy Project Phase II	4 ppmv (24-hr average)	12/14/2005
El Segundo Power Plant Project	4 ppmv (1-hr average)	2/02/2005
Morro Bay Modernization and Replacement Power Plant Project	2 ppmv (3-hr average)	8/02/2004
Tesla Power Plant Project	4 ppmv (3-hr average)	6/16/2004
San Joaquin Valley Power Plant Project	4 ppmv (3-hr average)	1/21/2004
Cosumnes Power Plant	4 ppmv (3-hr average)	9/09/2003
East Altamont Energy Center Power Plant Project	4 ppmv (3-hr average)	8/20/2003
Palomar Energy Project	4 ppmv (3-hr average)	8/06/2003
Metcalf Power Plant Project	6 ppmv (3-hr average)	9/24/2001
Contra Costa Power Plant Project	6 ppmv (3-hr average)	5/30/2001
Western Midway Sunset Cogeneration Power Plant Project (Area Energy)	6 ppmv (3-hr average)	3/21/2001
Mountainview Power Plant Project	6 ppmv (1-hr average)	3/21/2001

ATTACHMENT 3

TABLES IN AFC/PERMIT APPLICATION PACKAGE REVISED BASED ON NEW CO AND VOC BACT LEVELS

Table 8.1B-1 (revised 11/1/06)
South Bay Replacement Project
Combustion Model for Gas Turbinss

SDAPCD Standard Temperature = 68 F

Standard pressure = 29.92 in. Hg

Case	1) Annual Avg. w/DB	2) Ext. Cold w/DB	3) Extreme Hot Base	4) Annual Avg. Base	5) Extreme Cold Base	6) Extreme Hot Low Load	7) Annual Avg. Low Load	8) Extreme Cold Low Load	Boiler
Ambient Temperature (°F)	62.0	27.0	108.0	62.0	27.0	108.0	62.0	27.0	60.0
Ambient Relative Humidity (%)	83.6%	51.2%	31.6%	83.6%	51.2%	31.8%	83.6%	51.2%	83.6%
Turbine Load (%)	100%	100%	100%	100%	100%	50%	50%	50%	100%
Turbine Fuel Flow Rates									
scfm	28,772	30,756	25,262	28,772	30,756	16,715	18,733	19,836	622
lbs/hr as fired	77,136	82,455	67,726	77,136	82,455	44,811	50,223	53,179	1,669
lbs/hr, dry, ash free	77,136	82,455	67,726	77,136	82,455	44,811	50,223	53,179	1,669
MMBtu/hr (HHV)	1,757.4	1,878.6	1,543.0	1,757.4	1,878.6	1,020.9	1,144.2	1,211.6	38.02
MMBtu/hr (LHV)	1,583.6	1,692.8	1,390.4	1,583.6	1,692.8	920.0	1,031.1	1,091.8	34.3
Duct Burner Fuel Flow Rates									
scfm	9,400	9,400	-	-	-	-	-	-	-
lbs/hr as fired	25,200	25,200	-	-	-	-	-	-	-
lbs/hr, dry, ash free	25,200	25,200	-	-	-	-	-	-	-
MMbtu/hr (HHV)	574.1	574.1	-	-	-	-	-	-	-
Total Fuel Flow Rates									
scfm	38,172	40,156	25,262	28,772	30,756	16,715	18,733	19,836	622
lbs/hr as fired	102,336	107,655	67,726	77,136	82,455	44,811	50,223	53,179	1,669
lbs/hr, dry, ash free	102,336	107,855	67,726	77,136	82,455	44,811	50,223	53,179	1,669
MMbtu/hr (HHV)	2,331.5	2,452.7	1,543.0	1,757.4	1,878.6	1,020.9	1,144.2	1,211.6	38.02
Exhaust Gas Parameters									
Exhaust Flow Rate (wacfm)	984,690	1,054,243	910,600	1,012,396	1,083,216	635,107	660,794	681,729	16,303
Exhaust Flow Rate (dscfm)	734,832	796,316	657,802	744,165	804,727	469,897	499,964	521,079	6,754
Exhaust Flow Rate (lbs/hr)	3,607,491	3,668,975	3,188,922	3,582,109	3,639,448	2,268,351	2,402,321	2,485,563	35,091
Stack Temperature (F)	161.0	163.0	190.0	186.0	188.0	178.0	169.0	170.0	583.0
Diluent Concentrations									
O2 (%), dry basis	11.40%	11.68%	13.89%	13.84%	13.92%	14.41%	14.06%	13.95%	4.00%
Pollutant Concentrations at Ref. O2									
VOC as CH4, ppmvd	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	9.53
CH4, ppmvd									
THC as CH4, ppmvd	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	9.53
CO (short term), ppmvd	2	2	2	2	2	2	2	2	50.00
CO (long term), ppmvd	2	2	2	2	2	2	2	2	50.00
NOx (short term), ppmvd	2	2	2	2	2	2	2	2	9.00
NOx (long term), ppmvd	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	9.00
SOx (short term), ppmvd	0.4176	0.4176	0.4176	0.4176	0.4176	0.4176	0.4176	0.4176	1.2599
SOx (long term), ppmvd	0.1392	0.1392	0.1392	0.1392	0.1392	0.1392	0.1392	0.1392	0.4200
NH3, ppmvd	10	10	10	10	10	10	10	10	
Emission Rates (lbs/hour/turbine)									
VOC as CH4	4.42	4.85	2.92	3.33	3.56	1.93	2.17	2.30	0.15
CH4									
THC as CH4	4.42	4.85	2.92	3.33	3.56	1.93	2.17	2.30	0.15
CO (short term)	10.29	10.82	6.81	7.75	8.29	4.50	5.05	5.35	1.39
CO (long term)	10.29	10.82	6.81	7.75	8.29	4.50	5.05	5.35	1.39
NOx (short term)	16.89	17.77	11.18	12.73	13.61	7.40	8.29	8.78	0.41
NOx (long term)	14.36	15.11	9.50	10.82	11.57	6.29	7.05	7.46	0.41
SOx (short term)	4.91	5.17	3.25	3.70	3.96	2.15	2.41	2.55	0.080
SOx (long term)	1.64	1.72	1.08	1.23	1.32	0.72	0.80	0.85	0.027
NH3	31.27	32.90	20.70	23.57	25.20	13.68	15.35	16.25	
PM10	10.28	10.28	7.75	7.75	7.75	7.75	7.75	7.75	0.19

Table 8.1B-4 (revised 11/1/06)
South Bay Replacement Project
Assumptions Used to Calculate Maximum Hourly, Daily, and Annual Criteria Pollutant Emissions

Emitting Unit and Operating Mode	Max. CO Emiss. Scenario			Max. NOx Emiss. Scenario			Max. PM10/SOx Emiss. Scenario			Max. VOC Emiss. Scenario			NOx				SOx			CO			VOC			PM10	
	Max. CO Emission Hour (Startup)	Max. CO Emission Day (Startup + Duct Firing)	Max. CO Emission Year Scenario	Max. NOx Emission Hour (Startup)	Max. NOx Emission Day (Startup + Duct Firing)	Max. NOx Emission Year Scenario	Max. PM-10/SOx Emission Hour (Duct Firing)	Max. PM-10/SOx Emission Day (Duct Firing)	Max. PM-10/SOx Emission Year Scenario	Max. VOC Emission Hour (Startup)	Max. VOC Emission Day (Startup + Duct Firing)	Max. VOC Emission Year Scenario	Maximum Hourly Emission Rate (lb/hr)		Startup (lbs/hr)		Base Load (lb/hr)		Startup	Base Load (lb/hr)		Startup	Base Load (lb/hr)		Startup	Base Load	Startup
	(hrs)	(hrs/day)	(hrs/yr)	(hrs)	(hrs/day)	(hrs/yr)	(hrs)	(hrs/day)	(hrs/yr)	(hrs)	(hrs/day)	(hrs/yr)	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	lb/hr	Short Term	Long Term	lb/hr	Short Term	Long Term	lb/hr	lb/hr	lb/hr
Gas Turbine 1, baseload hot wo duct													11.18	9.50			3.25	1.08		6.81	6.81		2.92	2.92		7.75	
Gas Turbine 2, baseload hot wo duct													11.18	9.50			3.25	1.08		6.81	6.81		2.92	2.92		7.75	
Gas Turbine 1, baseload avg. wo duct			6,280			6,280			6,280			6,280	12.73	10.82			3.70	1.23		7.75	7.75		3.33	3.33		7.75	
Gas Turbine 2, baseload avg. wo duct			6,280			6,280			6,280			6,280	12.73	10.82			3.70	1.23		7.75	7.75		3.33	3.33		7.75	
Gas Turbine 1, baseload cold wo duct													13.61	11.57			3.96	1.32		8.29	8.29		3.56	3.56		7.75	
Gas Turbine 2, baseload cold wo duct													13.61	11.57			3.96	1.32		8.29	8.29		3.56	3.56		7.75	
Gas Turbine 1, duct burner at cold and avg. temp.		18	800		18	800	1	24	500		18	500	17.77	14.36			5.17	1.64		10.82	10.29		4.65	4.42		10.28	
Gas Turbine 2, duct burner at cold and avg. temp.		18	800		18	800	1	24	500		18	500	17.77	14.36			5.17	1.64		10.82	10.29		4.65	4.42		10.28	
Gas Turbine 1, startups	1	6	520	1	6	304				1	6		160	80	160	80	3.96	3.96	3.96	1,000	900	900	16.00	16.00	16.00	7.75	7.75
Gas Turbine 2, startups	1	6	520	1	6	304				1	6		160	80	160	80	3.96	3.96	3.96	1,000	900	900	16.00	16.00	16.00	7.75	7.75
Auxiliary Boiler	1	24	800	1	24	800				1	24		0.41	0.41	0.41	0.41	0.050	0.027	0.050	1.39	1.39	1.39	0.15	0.15	0.15	0.19	0.19
Emergency Firepump Engine			50			50	1	1	50			50	2.33	2.33			0.0026	0.0026		0.31	0.31		0.26	0.26		0.074	
Total Emitting Hours =	1	24	7,600	1	24	7,384	1	24	8,780	1	24	8,760															

Table 8.1B-5 (revised 11/1/06)
South Bay Replacement Project
Maximum Hourly, Daily, and Annual Criteria Pollutant Emissions

Emitting Unit and Operating Mode	NOx			SOx			CO			VOC			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
Gas Turbine 1, baseload hot wo duct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Turbine 2, baseload hot wo duct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Turbine 1, baseload avg. wo duct	0.00	0.00	33.99	0.00	0.00	5.10	0.00	0.00	24.35	0.00	0.00	13.76	0.00	0.00	32.01
Gas Turbine 2, baseload avg. wo duct	0.00	0.00	33.99	0.00	0.00	5.10	0.00	0.00	24.35	0.00	0.00	13.76	0.00	0.00	32.01
Gas Turbine 1, baseload cold wo duct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Turbine 2, baseload cold wo duct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Turbine 1, duct burner at cold and avg. temp.	0.00	319.91	5.74	5.17	124.03	0.41	0.00	194.77	4.11	0.00	83.67	1.10	10.28	246.77	2.57
Gas Turbine 2, duct burner at cold and avg. temp.	0.00	319.91	5.74	5.17	124.03	0.41	0.00	194.77	4.11	0.00	83.67	1.10	10.28	246.77	2.57
Gas Turbine 1, startups	160.00	960.00	12.16	0.00	0.00	0.00	1000.00	5400.00	234.00	16.00	96.00	0.00	0.00	0.00	0.00
Gas Turbine 2, startups	160.00	960.00	12.16	0.00	0.00	0.00	1000.00	5400.00	234.00	16.00	96.00	0.00	0.00	0.00	0.00
Auxiliary Boiler	0.41	9.86	0.16	0.00	0.000	0.0000	1.39	33.36	0.56	0.15	3.64	0.00	0.00	0.00	0.00
Emergency Firepump Engine	0.00	0.00	0.06	0.00	0.003	0.0001	0.00	0.00	0.01	0.00	0.00	0.01	0.07	0.07	0.002
Total	**320.41**	**2569.68**	**104.01**	**10.34**	**248.06**	**11.01**	**2001.39**	**11222.91**	**525.48**	**32.15**	**362.98**	**29.73**	**20.64**	**493.61**	**69.16**
	lb/hr	**lb/day**	**tpy**	**lb/hr**	**lb/day**	**tpy**	**lb/hr**	**lb/day**	**tpy**	**lb/hr**	**lb/day**	**tpy**	**lb/hr**	**lb/day**	**tpy**
Gas turbines=	320.00	2559.81	103.78	10.34	248.06	11.01	2000.00	11189.55	524.92	32.00	359.34	29.72	20.56	493.53	69.16
Engine and Boiler =	0.41	9.86	0.22	0.00	0.00	0.00	1.39	33.36	0.56	0.15	3.64	0.01	0.07	0.07	0.00

Table 8.1G-1 (revised 11/1/06)
South Bay Replacement Project
Annual Net Emission Change

Project	NOx	SOx	CO	VOC	PM10	PM10 Precursors	Ozone Precursors
	Total tpy	Total tpy	Total tpy	Total tpy	Total tpy	Total tpy	Total tpy
SBRP Maximum Annual Emissions	104.01	11.01	525.48	29.73	69.16	213.90	133.73
SBPP Historical Baseline Emissions	106.55	6.86	763.49	50.00	69.26	232.68	156.55
Net Change	-2.54	4.15	-238.01	-20.28	-0.11	-18.77	-22.82

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

APPLICATION FOR CERTIFICATION FOR THE SOUTH BAY REPLACEMENT PROJECT	Docket No. 06-AFC-3 PROOF OF SERVICE *(Revised 10/20/06)*

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

DOCKET UNIT

Send the original signed document plus the required 12 copies to the address below:

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
Attn: Docket No. 99-AFC-8C
1516 Ninth Street
Sacramento, CA 95814-5512

* * * *

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

APPLICANT

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INTERESTED AGENCIES

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ENERGY COMMISSION

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DECLARATION OF SERVICE

I, Jeannette Harris, declare that on November 13, 2006, I deposited copies of the attached to Letter to San Diego County Pollution Control District: CO, NOx and BACT Levels, in the United States mail at Sacramento, CA with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Jeannette Harris
[signature]