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09-AFC-4
DATE OCT 20 2010
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October 20, 2010

Mr. Pierre Martinez
Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Oakley Generating Station Project (09-AFC-4)
Cumulative Air Quality Impact Analysis (Supplemental Filing in Response to California Energy Commission Staff Data Request #23)

Dear Mr. Martinez:

Attached please find three (3) hardcopies Cumulative Air Quality Impact Analysis (Supplemental Filing in Response to California Energy Commission Staff Data Request #23) for the Oakley Generating Station (09-AFC-4). Also attached are 3 CD ROMs containing the air quality modeling files used in the analysis.

If you have any questions about this matter, please contact me at (916) 286-0278.

Sincerely,

CH2M HILL

Douglas M. Davy, Ph.D.
AFC Project Manager

cc: POS List
Project File

CUMULATIVE AIR QUALITY IMPACT ANALYSIS

(Supplemental Filing in Response to California Energy Commission Staff Data Request #23)

For the:

Oakley Generation Station Project
09-AFC-4

Prepared for:

Radback Energy

Prepared by:

Atmospheric Dynamics, Inc.
Torres 3 SW of Mountain View
Carmel-by-the-Sea, CA. 93921

October 2010

Cumulative Air Quality Modeling Assessment

A cumulative air quality modeling assessment was made for the proposed Oakley Generating Station (OGS) project. Localized impacts from OGS could result from emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and directly emitted PM10/2.5. Based on the results of the proposed facility-only air quality modeling analyses described above, "significant" air quality impacts, as that term is defined in federal air quality modeling guidelines, was determined to occur only for the facility's maximum PM2.5 24-hour and annual impacts. If the project's impacts do not exceed the significance levels, no cumulative impacts will be expected to occur, and no further analysis is typically required. However, the potential cumulative localized impacts were modeled for OGS emissions in conjunction with emissions of existing facilities and proposed/permitted facilities not yet in operation but that are reasonably foreseeable. The sources modeled in the cumulative assessment include facilities within a radius of 8 miles around the plant site or PM2.5 significant area (with a radius of 1.1 miles). Three categories of projects with emissions sources will be used as criteria for identification:

- Projects that have been in operation for a sufficient time period, and whose emissions are included in the overall background air quality data.
- Projects that recently were permitted or began operations and whose emissions may not be reflected in the ambient monitoring background data.
- Projects for which air pollution permits to construct have not been issued, but that are reasonably foreseeable.

The Bay Area Air Quality Management District (BAAQMD) provided the initial list of cumulative sources for use in the analysis of 1-hour NO_2 impacts. This list was supplemented with Marsh Landing Generating Station cumulative inventories for SO_2, CO, PM, and long-term NO_X emissions. BAAQMD then provided additional sources to complete the required modeling inventories for the cumulative SO_2, CO, and PM modeling assessment. These source lists are included on the attached compact disk. In addition to the new sources within an 8-mile radius, additional sources were also considered in the cumulative modeling assessment, which included the following:

- Gateway Generation Station
- Marsh Landing
- Pittsburg Power Plant (included based on intermittent plant operations which may not be reflected in background)

These sources along with recently proposed/permitted projects, including emergency generators and fire pumps, were included in the cumulative analysis.

Methodology

To assess the new Federal 1-hour NO_2 standard, the BAAQMD provided a short-term NO_X modeling inventory, which is shown in Table 1. This inventory includes additional existing sources well beyond the 8mile radius that were not assessed in the cumulative analysis for the other criteria pollutants. These NO_X sources were added to the worst-case start-up or normal operating conditions for the OGS refined facility-only modeling analyses, which are shown on Table 2. To assess the 1-hour NO_2 impacts, both turbines at OGS were assumed to be in cold start mode as reflected on Table 2 (additional startup emissions modeled for other facilities are highlighted in green on Tables 1 and 3).

Marsh Landing Generating Station (MLGS) sources in the BAAQMD inventory were revised to reflect the most recent emissions/stack characteristics from MLGS CEC submittals. In addition, cumulative inventory sources from the most recent MLGS Cumulative Analysis (as identified in the MLGS "Responses to Data Request Set 3b: #99-101", February 2010, Table 63-1) were included in the cumulative modeling assessment. The MGLS inventory includes SO_2, CO, PM, and long-term NO_X that were used to supplement the original BAAQMD 1-hour NO_X inventory. The list of MLGS cumulative sources are shown in Table 3.

The BAAQMD finally provided an additional set of cumulative sources to complete the cumulative analysis which includes SO_2, CO, and PM emissions, which is shown in Table 4. The emergency generators and/or fire pumps from the latest BAAQMD inventory were not removed from the inventory and were included in the analyses. Where no stack parameters were provided by the BAAQMD, worst-case assumptions were used (which include the use of a three meter stack height, low exit velocity of 0.1 m/s, exit temperature of ambient for non combustion sources and 333 Kelvin for combustion sources).

One of the cumulative sources with missing parameters, a concrete batch plant (source #09029), caused significant PM10/2.5 impacts in the modeling analysis. This source was investigated further to determine if more refined stack characteristics could be calculated. The BAAQMD had no additional information for this source, so aerial photo images were examined to determine the exact location of the facility. The aerial photo images also show a relative tall stack, so a 40-foot stack height and 4 m/s exit velocity were assumed. Conservative estimates for other missing stack data information in the latest BAAQMD inventory are highlighted on Table 4 with this final set of BAAQMD sources modeled.

For this cumulative analysis, the regular receptor grids from the OGS refined facility analyses were combined with the 10-meter spaced refined receptors around maximum OGS impacts outside the regular 10-meter receptor grid. The same five years of worst-case meteorological data from the refined analyses (Contra Costa Power met tower data provided by BAAQMD for 2001-02 and 2004-06 in AERMOD format combined with OGS surface characteristics). For 1-hour NO_2 impacts, the AERMOD Ozone Limiting Method (OLM) option was used with concurrent Pittsburg ozone data. AERMOD 1-hour NO_2-OLM modeling results were post-processed to determine the maximum 5-year average of the annual 98th percentile (or eighth-highest) maximum daily 1-hour NO_2 impacts (termed H8Havg here) when combined with concurrent NO_2 data, also measured at the Pittsburg air monitoring site. Annual NO_2 impacts were calculated from modeled NOX impacts using the default-USEPA Ambient Ratio Method (ARM) factor of 0.75, or 75%.

To assess the Federal statistical standards for PM10 and PM2.5 (NAAQS), the following was used:

- 24-hour PM10 – the maximum sixth highest or H6H based on five years of meteorology

- 24-hour PM2.5 – the maximum 5-year average of the annual 98th percentile daily PM2.5 impacts
- Annual PM2.5 – the maximum 5-year average of annual PM2.5 impacts

Based on recent updated USEPA guidance, when using the modeled H6H for PM10 or the 98th percentile for PM2.5 for comparison to the NAAQS, the maximum background concentration should be used. All of the background concentrations presented in the original refined impact analyses were the maximum short-term or annual concentrations measured during the period from 2006 through 2008, with the exception of PM2.5 (which used the statistical form of the standard). Therefore, the 24-hour PM2.5 background concentration included with the modeled cumulative impacts for comparison to the NAAQS was 62.1ug/m^3 rather than 35.2 ug/m^3 as presented in the original analysis. Except for 1-hour NO_2 NAAQS and 24-hour PM10/PM25 NAAQS, the maximum modeled concentrations using the five years of modeled meteorological data are added to the maximum background concentrations for comparison to the California AAQS (CAAQS) or other NAAQS.

Results

The cumulative results shown on Table 5. As can be seen, total cumulative impacts (Modeled + Background) are less than the NAAQS and CAAQS for NO2 (1-hour and annual), CO (1-hour and 8-hour), and SO_2 (1-hour, 3-hour, 24-hour, and annual).

The 24-hour modeling results for PM10 are less than the NAAQS based on the H6H modeled impact plus the maximum background PM10 concentration. The cumulative impacts exceed the PM2.5 NAAQS and the PM10 and PM2.5 CAAQS. It should be noted that the air basin is already designated as a non-attainment for State PM10/PM2.5 standards and National PM2.5 standards. Also, if should be further noted that the all of the PM10/2.5 modeled impacts above the standard(s) are due solely to the Kie-Con batch plant (source #09029) and these maximum impacts are due to the modeling methodology used to assess this source (i.e., using a hypothetical stack parameters as the BAAQMD has no stack data). Taking this source out of the inventory, the maximum-modeled PM10 and PM2.5 cumulative concentrations would be 4.9 ug/m^3 on a 24-hour basis and 0.68 ug/m^3 on an annual basis. Therefore, without this one source, the cumulative modeling results without background concentrations would show compliance with the both the PM10/PM2.5 NAAQS and CAAQS for all averaging times.

The PM10 cumulative modeling assessment shows compliance with the NAAQS but exceedances of the CAAQS (both 24-hour and annual). As noted earlier, the OGS vicinity is considered to be an attainment area for the PM10 NAAQS and a non-attainment area for PM10 CAAQS. For both the 24-hour and annual CAAQS, the background PM10 concentrations (even before adding modeled cumulative

impacts) are already greater than the CAAQS. The maximum OGS facility impacts are always less than the PM10 SILs. Thus, there could be no significant contribution of OGS emissions to the modeled PM10 exceedances of the CAAQS regardless of background. For the limited area (42 receptors) near the Kie-Con batch plant (#09029) with modeled exceedances of the 24-hour PM10 CAAQS (i.e., modeled impacts without background greater than 50 ug/m^3), the maximum OGS impacts at these receptors during any 24-hour period are approximately 10% of the SIL (0.53 ug/m^3 vs. 5 ug/m^3 SIL). Maximum modeled annual PM10 cumulative impacts (without background) are less than the annual CAAQS.

The PM2.5 cumulative modeling assessment shows exceedances of both the NAAQS and CAAQS after adding background as the area is considered to be nonattainment for both the PM2.5 NAAQS and PM2.5 CAAQS. Background 24-hour PM2.5 concentrations already exceed the 24-hour NAAQS (before adding modeled cumulative impacts). For the limited area (5 receptors) near the Kie-Con batch plant (source #09029) with modeled exceedances of the 24-hour PM2.5 NAAQS, the maximum OGS impacts at these receptors during any 24-hour period are less than one-half of the SIL (0.49 ug/m^3 vs. 1.2 ug/m^3 SIL). Maximum modeled cumulative impacts without background (14.7 ug/m^3) are less than the annual PM2.5 NAAQS of 15.0 ug/m^3. When adding background concentrations to the modeling results, the total impacts (modeled+background) greater than the PM2.5 annual NAAQS are limited to 63 receptors near the Kie-Con batch plant (source #09029) and maximum annual OGS impacts at these receptors are less than 5% of the PM2.5 SIL (0.013 ug/m^3 vs. 0.3 ug/m^3 SIL). Again, OGS emissions are shown not to represent a significant contribution to the modeled PM2.5 NAAQS exceedances.

Finally, the PM2.5 cumulative modeling assessment shows exceedances of the annual CAAQS (12 ug/m^3) by both modeled (15.6 ug/m^3) and total (modeled+background of 24.9 ug/m^3) impacts, even though representative background for the project vicinity of 9.3 ug/m^3 is less than the annual CAAQS.

Maximum annual OGS impacts at the receptors with exceedances near the Kie-Con batch plant (source #09029) with modeled exceedances of the annual PM2.5 CAAQS are 0.013 ug/m^3 (at the 11 receptors with modeled impacts alone greater than 12 ug/m^3) and 0.015 ug/m^3 (at the 427 receptors with maximum modeled impacts plus background concentration greater than 12 ug/m^3). Like the annual PM2.5 NAAQS, these two OGS impacts are less than 5% of the PM2.5 SIL (0.013 ug/m^3 vs. 0.3 ug/m^3 SIL). Like the other cumulative modeling assessments for PM, OGS emissions are shown not to represent a significant contribution to the modeled PM2.5 CAAQS exceedances.

Conclusion

Based on these results, it is assumed that OGS, in conjunction with operation from other existing background sources, will not cause or contribute to violations of the CAAQS or NAAQS for all pollutants and averaging times.

TABLE 1
Stack Parameters and Emission Rates for the BAAQMD 1-Hour NO_2 Inventory

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	NO_X Emission Rates (g/s)
	UTM X (m)	UTM Y (m)	Elev. (m)					
Marsh Landing Turbine 1	608436.08	4208240.58	5.13	50.292	672.04	14.965	9.5504	*(see project-specific emissions in Table 3)*
Marsh Landing Turbine 2	608478.73	4208241.72	4.11	50.292	672.04	14.965	9.5504	
Marsh Landing Turbine 3	608521.38	4208242.87	3.41	50.292	672.04	14.965	9.5504	
Marsh Landing Turbine 4	608564.03	4208244.01	3.14	50.292	672.04	14.965	9.5504	
Marsh Landing Heater 1	608480.85	4208278.2	3.38	7.93	486.33	15.27	0.2	
Marsh Landing Heater 2	608485.75	4208278.4	3.3	7.93	486.33	15.27	0.2	
CCPP NG Boilers 9&10	608921.6	4208365.24	2.39	137.16	411	28.7	5.7	19.404
Gateway NG Boiler A	608996	4208257.5	3.58	59.44	355.22	19.92	5.11	2.52
Gateway NG Boiler B	608996	4208216.5	3.62	59.44	355.22	19.92	5.11	20.16
PPP NG Boiler 5	597099.22	4210653.21	1.46	137.16	403	32.64	4.18	4.158
PPP NG Boiler 6	597070.22	4210660.21	1.35	137.16	403	32.64	4.18	4.158
PPP NG Boiler 7	596958.22	4210530.21	1.52	137.16	398	25	6.1	22.05
WPGS Turbine	597186.92	4210541.36	2.03	45.8724	434.98	13.054	6.5024	8.6436
WPGS Turbine	597282.29	4210513.55	2.67	45.8724	434.98	13.054	6.5024	2.1924
WPGS Fuel Gas Heater	597005.26	4210469.59	1.74	7.93	486.33	15.27	0.2	0.0189
Delta Energy Center	601406	4208272	5.94	43.8917	349.82	20.1	5.486	2.42
Delta Energy Center	601406	4208316	5.35	43.8917	349.82	20.1	5.486	2.42
Delta Energy Center	601405	4208355	4.82	43.8917	349.82	20.1	5.486	13.86
Los Medanos Energy Center	598935	4209683	2.93	53.3406	368.15	20.7	5.333	2.52
Los Medanos Energy Center	598957	4209702	2.63	53.3406	368.15	20.7	5.333	17.06
GWF Antioch	607077	4207815	21.71	24.3843	427.59	14.5	1.6	1.89
GWF Antioch	609214	4207760	4.23	24.3843	427.59	14.5	1.6	1.89
GWF Baypoint	588878	4211119	3.61	30.4804	427.59	14.5	1.6	1.89
GWF Pittsburg	599126	4209835	0	30.4804	427.59	14.5	1.6	1.89
GWF Pittsburg	600055	4208236	9.47	30.4804	427.59	14.5	1.6	1.89

TABLE 1
Stack Parameters and Emission Rates for the BAAQMD 1-Hour NO_2 Inventory

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	NO_X Emission Rates (g/s)
	UTM X (m)	UTM Y (m)	Elev. (m)					
Silgan Containers Mfg	607617	4207618	10.52	12.19	755.37	6.739	1.5	0.168525
Silgan Containers Mfg	607582	4207589	10.65	14.63	673.15	4.46	0.91	0.02205
Ameresco KC Engine	593659.9	4206580.5	128	10.668	740.37	40.686	0.508	0.44617
Ameresco KC Engine	593661.8	4206585	126.94	10.668	740.37	40.686	0.508	0.44617
Ameresco KC Flare	593676.1	4206587	124.31	9.144	1144.26	4.573	1.524	0.062369
Keller Canyon LandFill Flare	593650.9	4206606.5	124.25	12.192	1033.15	6.758	3.048	0.5496
Keller Canyon LandFill Flare	593633.4	4206614.5	122.26	13.0058	1033.15	6.485	3.1813	0.57455

TABLE 2
Stack Parameters and Emission Rates for the Oakley Generating Station Sources

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	Emission Rates (g/s)			
	UTM X (m)	UTM Y (m)	Elev. (m)					NO_X	SO_2	CO	PM10/2.5
1-hour Averaging Times											
Normal Turbine/each - SO_2	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	358.0	19.26	5.5992	—	0.756	—	—
Startup Turbine/each - NO_X,CO	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	350.5	14.16	5.5992	12.585	—	45.658	—
Fire Pump	609933.59	4207505.92	6.00	4.877	714.26	32.22	0.2032	—[a]	5.040E-4	—[a]	—
Auxiliary Boiler	610150.91	4207445.27	6.00	15.240	416.48	15.08	0.7620	5.292E-2	1.764E-2	0.047	—
3-hour Averaging Times											
Normal Turbine/each - SO_2	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	358.0	19.26	5.5992	—	0.756	—	—
Fire Pump	609933.59	4207505.92	6.00	4.877	714.26	32.22	0.2032	—	1.680E-4	—	—
Auxiliary Boiler	610150.91	4207445.27	6.00	15.240	416.48	15.08	0.7620	—	1.764E-2	—	—
8-hour Averaging Times											
Startup Turbine/each - CO	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	350.5	14.16	5.5992	—	—	10.218	—
Fire Pump	609933.59	4207505.92	6.00	4.877	714.26	32.22	0.2032	—	—	0.0109	—
Auxiliary Boiler	610150.91	4207445.27	6.00	15.240	416.48	15.08	0.7620	—	—	0.012	—
24-hour Averaging Times											
Normal Turbine/each - PM	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	350.5	14.16	5.5992	—	—	—	1.134
Normal Turbine/each - SO_2	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	358.0	19.26	5.5992	—	0.756	—	—
Fire Pump	609933.59	4207505.92	6.00	4.877	714.26	32.22	0.2032	—	2.100E-5	—	4.463E-4
Auxiliary Boiler	610150.91	4207445.27	6.00	15.240	416.48	15.08	0.7620	—	1.470E-3	—	3.717E-3
Each Evap. Cooler Cell	610127.46 610131.14 610136.23	4207509.45 4207509.45 4207509.45	6.00 6.00 6.00	7.010	304.21	10.19	3.353	—	—	—	5.544E-3

TABLE 2
Stack Parameters and Emission Rates for the Oakley Generating Station Sources

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	Emission Rates (g/s)			
	UTM X (m)	UTM Y (m)	Elev. (m)					NO_X	SO_2	CO	PM10/2.5
Annual Averaging Periods											
Average Turbine/each	610176.82 610176.82	4207415.40 4207373.95	6.00 6.00	47.396	361.4	22.04	5.5992	1.418	0.181	—	1.096
Fire Pump	609933.59	4207505.92	6.00	4.877	714.26	32.22	0.2032	1.514E-3	2.819E-6	—	5.991E-5
Auxiliary Boiler	610150.91	4207445.27	6.00	15.240	416.48	15.08	0.7620	2.435E-3	8.115E-4	—	2.052E-3
Each Evap. Cooler Cell	610127.46 610131.14 610136.23	4207509.45 4207509.45 4207509.45	6.00 6.00 6.00	7.010	304.21	10.19	3.353	—	—	—	9.493E-4

[a] Fire pump will not operate during 1-hour start-ups (as modeled for worst-case 1-hour NO_2/CO impacts).

TABLE 3
Stack Parameters and Emission Rates for MLGS and MLGS Cumulative Inventory

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	Emission Rates (g/s)			
	UTM X (m)	UTM Y (m)	Elev. (m)					NO_X	SO_2	CO	PM10/2.5
MLGS Short-term Emissions	*(Stack characteristics from BAAQMD Inventory in Table 1 not shown)*										
Marsh Landing Turbine 1								5.6826	0.7812	68.544	1.134
Marsh Landing Turbine 2								2.6246	0.7812	1.260	1.134
Marsh Landing Turbine 3								2.6246	0.7812	1.260	1.134
Marsh Landing Turbine 4								2.6246	0.7812	1.260	1.134
Marsh Landing Heater 1								0.0115	0.00189	0.02142	0.00189
Marsh Landing Heater 2								0.0115	0.00189	0.02142	0.00189
MLGS Long-term Emissions & MLGS Cumulative Inventory											
Marsh Landing Turbine 1				50.292	672.04	20.818	9.5504	0.5160	0.0560		0.2255
Marsh Landing Turbine 2				50.292	672.04	20.818	9.5504	0.5160	0.0560		0.2255
Marsh Landing Turbine 3				50.292	672.04	20.818	9.5504	0.5160	0.0560		0.2255
Marsh Landing Turbine 4				50.292	672.04	20.818	9.5504	0.5160	0.0560		0.2255
Marsh Landing Heater 1								0.00374	2.877E-4		4.315E-4
Marsh Landing Heater 2								0.00374	2.877E-4		4.315E-4
CCPP NG Boilers 9&10								6.053E-1[a]	3.13E-2	4.166E+0	3.77E-1
Gateway NG Boiler A								2.507E+0[a]	5.322E-1	7.973E+0	1.463E+0
Gateway NG Boiler B								2.507E+0[a]	5.322E-1	7.973E+0	1.463E+0
PPP NG Boiler 5								5.051E-1[a]	3.37E-2	4.490E+0	4.06E-1
PPP NG Boiler 6								3.241E-1[a]	1.95E-2	2.593E+0	2.35E-1
PPP NG Boiler 7								3.248E-1[a]	1.22E-2	1.624E+0	1.47E-1
Silgan Containers Mfg								5.529E-2[a]	1.726E-4	2.212E-1	2.071E-3
Ameresco KC Engine								8.924E-1[a]	2.485E-1	2.733E+0	1.487E-1
Ameresco KC Flare								6.237E-2[a]	5.192E-2	5.982E-1	3.487E-2
United Spiral Pipe	599296	4209504	3.5	12.19	294.3	73.89	0.26	–	–	–	1.375E-1
Freedom High School	612191	4202931	26.8	3.66	416.5	21.03	0.08	4.804E-2	–	4.804E-2	2.388E-3

TABLE 3
Stack Parameters and Emission Rates for MLGS and MLGS Cumulative Inventory

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	Emission Rates (g/s)			
	UTM X (m)	UTM Y (m)	Elev. (m)					NO_X	SO_2	CO	PM10/2.5

[a] See Table 1 for 1-hour NO_X emission rates from BAAQMD for these sources.

TABLE 4
Stack Parameters and Emission Rates for Additional BAAQMD Cumulative Inventory Sources

	Stack Coordinates (NAD27)			Stack Height (m)	Stack Temp. (deg K)	Exit Vel. (m/s)	Stack Diam. (m)	Emission Rates (g/s)			
	UTM X (m)	UTM Y (m)	Elev.[a] (m)					NO_X	SO_2	CO	PM10/2.5
ABM Co. #00092	599838	4207444	14.1	9.144	458.2	26.71	1.1587	1.364E-1	3.383E-2	7.357E-1	9.154E-2
Kie-Con #09029	609531[a]	4207565[a]	5.9[a]	12.192[a]	Ambient[a]	4.0[a]	0.3048[a]	–	–	–	1.423E-1
WC-USA #16979	599255	4207540	17.7	3.048[a]	Ambient[a]	0.10[a]	0.3048[a]	5.543E-2	2.877E-4	4.655E-2	4.200E-3
Venoco 30 #18754	617010	4205437	2.9	2.438	755.4	12.26	0.1014	5.121E-3	5.753E-5	1.096E-2	7.479E-4
Venoco 32 #18754 (modeled as #18755)	617010	4205437	2.9	2.896	855.4	23.94	0.1014	8.573E-3	5.753E-5	1.717E-2	1.122E-3
Venoco #19398	617296	4207804	0.0	3.048[a]	333.0[a]	0.10[a]	0.3048[a]	1.890E-3	1.151E-5	1.588E-3	1.438E-4
Venoco #19399	617796	4206804	0.0	3.048[a]	333.0[a]	0.10[a]	0.3048[a]	1.582E-3	–	1.323E-3	1.151E-4
OCC #19480	609731	4206646	9.2	3.048[a]	333.0[a]	0.10[a]	0.3048[a]	4.315E-3	–	9.205E-4	–
K2 #19931	600496	4209004	3.7	15.24	544.3	12.74	0.9145	2.733E-1	3.337E-2	2.985E-1	6.944E-2
ABA EC #20349	617459	4210477	0.4	3.048	860.9	35.74	0.1014	1.243E-2	1.007E-4	2.359E-2	1.611E-3
RCTS #09902	600494	4208204	8.5	1.676	949.8	54.77	0.1014	5.753E-6	–	3.452E-4	–
CCWD #14038	609818	4204568	33.2	2.743	833.2	81.46	0.1014	8.918E-4	–	2.877E-4	–
ECCF #19303	611196	4197704	39.0	2.591	710.4[a]	242.22	0.1515[a]	1.381E-3	–	5.753E-4	8.630E-5
AWTP #19508	604532	4204148	47.3	5.486	735.9	28.99	0.2539	5.351E-3	–	5.466E-4	8.630E-5
CCFS 85 #19569	599301	4206675	27.2	2.134	710.4	27.47	0.1515	8.918E-4	2.877E-6	4.603E-4	5.753E-5
CCFS 83 #19767	602277	4205777	24.9	3.048	853.2	47.00	0.1014	6.904E-4	–	3.452E-4	2.877E-5
ISD #20128	613660	4206019	3.0	2.134[a]	710.4[a]	27.47[a]	0.1515[a]	2.460E-2	–	2.704E-3	6.329E-4
Venoco #20193	616970	4208057	0.7	2.591	1018.7	62.62	0.0761	4.562E-2	6.904E-5	4.867E-2	1.122E-3
CCFD 84 #20239	597960	4208318	16.1	3.124	760.4	42.80	0.1250	7.968E-4	2.877E-6	3.021E-4	4.315E-5

[a] Conservative estimate for missing/inaccurate values. UTM coordinates were translated from NAD83 to NAD27 using U.S. Army Corps of Engineers CORPSCON program (version 5.11.08) here and United Spiral Pipe and Freedom HS in Table 3. AERMAP runs interpolated stack base elevations from 10-meter DEM files.

TABLE 5
Air Quality Results for Cumulative Air Quality Modeling Assessment

Pollutant	Avg. Period	Maximum Concentration (μg/m³)	Background (μg/m³)	Total (μg/m³)	Class II Significant Impact Level (μg/m³)	Ambient Air Quality CAAQS/NAAQS (μg/m³)	(μg/m³)
NO_2 NAAQS[a,b]	1-hour	-	-	133	-	-	188
NO_2 CAAQS[a]	1-hour	192	98.1	290	-	339	-
NO_2[c] Annual	Annual	3.88	20.8	24.7	1	57	100
CO	1-hour	777	3771	4548	2,000	23,000	40,000
	8-hour	105	2171	2276	500	10,000	10,000
SO_2	1-hour	10.8	122.2	133.0	-	655	196
	3-hour	8.1	65.0	73.1	25	-	1,300
	24-hour	2.3	23.4	25.7	5	105	365
	Annual	0.21	7.8	8.0	1	-	80
PM10 NAAQS	24-hour	66.7	82	149	5	-	150
PM10 CAAQS	24-hour	169	82	251	-	50	-
	Annual	15.6	24	40	-	20	-
PM2.5 NAAQS	24-hour	38.6	62	101	1.2[d]	-	35
	Annual	14.7	9.3	24.0	0.3[d]	-	15.0
PM2.5 CAAQS	Annual	15.6	9.3	24.9	-	12	-

[a] NO_2 1-hour impacts evaluated using the Ozone Limiting Method (OLM).
[b] Five-year average concentration of 8th-highest (98th percentile) daily maximum concentrations evaluated by a postprocessor, after including concurrent background NO_2 1-hour concentrations.
[c] NO_2 annual impacts evaluated using the Ambient Ratio Method (ARM) with a USEPA-default ratio of 75%.
[d] Proposed Significant Impact Levels (SILs). The projects impacts exceed the proposed SILs for PM2.5. The area has now been re-designated to non-attainment for PM2.5, thus no further analysis is proposed.
Source: Radback-OGS Team, 2010.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION
FOR THE *OAKLEY GENERATING STATION*

Docket No. 09-AFC-4
PROOF OF SERVICE
(Revised 8/13/2010)

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DECLARATION OF SERVICE

I, Mary Finn, declare that on October 20, 2010, I served and filed copies of the attached Oakley Generating Station Project (09-AFC-4) Cumulative Air Quality Impact Analysis (Supplemental Filing in Response to California Energy Commission Staff Data Request #23). The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[http://www.energy.ca.gov/sitingcases/contracosta/index.html].** The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

For service to all other parties:

sent electronically to all email addresses on the Proof of Service list;

__x__ by personal delivery;

_____ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

x sending an three original paper copies and three CD ROM's hand delivered to the address below (preferred method);

OR

_____depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-4
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Mary Finn