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Document Title:	AES Redondo Beach, LLC's Letter to SCAQMD
Description:	CD containing 1 hour NO2 Cumulative Impact Assessment and Class II VISCREEN Air Dispersion Modeling Input/Output Files
Filer:	Sabrina Savala
Organization:	AES Redondo Beach, LLC
Submitter Role:	Applicant
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November 4, 2013

Mr. Mohsen Nazemi, P.E.
Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Subject: Redondo Beach Energy Project Permit Application (Facility ID# 115536)

Dear Mr. Nazemi:

AES Redondo Beach, LLC (AES) is submitting this letter in response to the South Coast Air Quality Management District's (SCAQMD) October 15, 2013 e-mail approving the methodology for performing the cumulative 1-hour nitrogen dioxide (NO_2) national ambient air quality impact assessment and the Class II visibility impact area analysis for the Redondo Beach Energy Project (RBEP). This letter presents AES's air quality impact assessment and incorporates comments received from the SCAQMD. This letter also demonstrates compliance with SCAQMD Rule 1401.

1) Cumulative 1-hour NO_2 National Ambient Air Quality Impact Assessment

Response: Table SCAQMD-1 presents a comparison of the maximum RBEP operational impacts to the California and National Ambient Air Quality Standards (CAAQS and NAAQS, respectively). The NO_2, carbon monoxide (CO), and sulfur dioxide (SO_2) concentrations combined with the background concentrations do not exceed either the CAAQS or NAAQS. Therefore, RBEP will not cause or contribute to the violation of a standard, and the NO_2, CO, and SO_2 impacts from operation will be less than significant.

For particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), modeled RBEP $PM_{2.5}$ concentrations combined with the background concentrations do not exceed the 24-hour NAAQS and will not cause or contribute to the violation of the 24-hour NAAQS. However, the background concentrations exceed both the annual CAAQS and NAAQS without the proposed project. As a result, the predicted project impacts plus background also exceed the annual CAAQS and NAAQS such that operation of the proposed project would further contribute to an existing violation of the annual standards absent mitigation. Similarly, for particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), the background concentrations exceed the 24-hour and annual CAAQS without the proposed project. As a result, the predicted project impacts plus background also exceed the CAAQS such that

operation of the proposed project would further contribute to an existing violation of the CAAQS absent mitigation. As discussed in Application for Certification (AFC) Section 5.1.8.2, which was submitted to the California Energy Commission (CEC) in November 2012, RBEP emissions will be fully offset consistent with SCAQMD Rules 1303, 1304, and 1304.1 using the SCAQMD internal offset bank. Therefore, the $PM_{2.5}$ and PM_{10} impacts from operation will be mitigated to a less-than-significant level.

A summary of the dispersion modeling input files for this analysis, as well as the modeling parameters used, are presented in Attachment 1. The AERMOD input and output files have been separately prepared and are included with this submission on compact disc.

TABLE SCAQMD-1
RBEP Operation Impacts Analysis—Maximum Modeled Impacts Compared to the Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$) [a]	Total Predicted Concentration ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2 [b]	1-hour	32.1	184	216	339	—
	Federal 1-hour [c]	32.1	113	145	—	188
	Annual	0.32	29.9	30.2	57	100
SO_2	1-hour	3.35	67.8	71.2	655	—
	Federal 1-hour [d]	3.35	25.3	28.7	—	196
	3-hour	1.47	38.7	40.2	—	1,300
	24-hour	0.48	15.7	16.2	105	365
CO	1-hour	179	4,581	4,760	23,000	40,000
	8-hour	38.0	2,863	2,901	10,000	10,000
PM_{10}	24-hour	1.73	52.0	53.7	50	150
	Annual	0.21	25.6	25.8	20	—
$PM_{2.5}$	24-hour [c]	1.73	31.2	32.9	—	35
	Annual	0.21	15.5	15.7	12	12

[a] Background concentrations were the highest concentrations monitored during 2008 through 2012, with the exception of the 3-hour SO_2 averaging period, which was taken as the highest concentrations monitored during 2008 through 2010.
[b] The maximum 1-hour and annual NO_2 concentrations include ambient NO_2 ratios of 0.80 (U.S. Environmental Protection Agency [EPA], 2011) and 0.75 (EPA, 2005), respectively.
[c] Total predicted concentrations for the Federal 1-hour NO_2 standard and 24-hour $PM_{2.5}$ standard are the respective maximum modeled concentrations combined with the 3-year average of 98th percentile background concentrations.
[d] Total predicted concentrations for the Federal 1-hour SO_2 standard is the maximum modeled concentration combined with the 3-year average of 99th percentile background concentrations.

$\mu g/m^3$ = micrograms per cubic meter

Table SCAQMD-2 presents a summary of the predicted hourly and annual NO_2 and 24-hour and annual PM_{10} impacts from RBEP operation, as well as a comparison to the Class II Significant Impact Levels (SILs), Class II Prevention of Significant Deterioration (PSD) Increment Standards, and the significant monitoring concentration levels. The dispersion modeling was performed consistent with the RBEP dispersion modeling protocol and addendum. As shown, the maximum predicted annual NO_2, 24-hour PM_{10}, and annual PM_{10} impacts from RBEP operation are below the Class II SILs, PSD Class II Increment Standards, and significant monitoring concentrations. Therefore, additional analysis of annual NO_2, 24-hour PM_{10}, and annual PM_{10} impacts is not required. However, the maximum predicted 1-hour NO_2 impacts from RBEP

operation exceed the Class II SIL, with a radius of impact with predicted concentrations greater than 7.52 micrograms per cubic meter ($\mu g/m^3$) of 0.9 kilometers (km). Therefore, the cumulative impacts of the RBEP and competing sources were assessed for all receptors where RBEP impacts alone exceeded the 1-hour NO_2 SIL.

TABLE SCAQMD-2
RBEP Predicted Impacts Compared to the PSD Air Quality Impact Standards

Averaging Period/ Pollutant	Maximum Predicted Impact ($\mu g/m^3$) [a]	Significant Impact Level ($\mu g/m^3$)	PSD Class II Increment Standard ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)
NO_2 (1-hour)	32.1	7.52 [b]	N/A	N/A
NO_2 (Annual)	0.32	1.0	25	14
PM_{10} (24-hour)	1.73	5.0	30	10
PM_{10} (Annual)	0.21	1.0	17	N/A

[a] The maximum 1-hour and annual NO_2 concentrations include ambient NO_2 ratios of 0.80 (EPA, 2011) and 0.75 (EPA, 2005), respectively.
[b] The SIL for 1-hour NO_2 is based on SCAQMD correspondence.
N/A = Not Applicable (i.e., no standard)

The SCAQMD identified four facilities within 10 km of RBEP for inclusion in the cumulative impact assessment:

- Exxon Mobil Oil Corporation (Facility ID 800089): located in Torrance, California with 29 emission sources
- Chevron Products Corporation (Facility ID 800030): located in El Segundo, California with 37 emission sources
- Scattergood Generating Station (Facility ID 800075): located in Playa del Rey, California with four emission sources
- El Segundo Power, LLC (Facility ID 115663): located in El Segundo, California with five emission sources

The stack locations, stack parameters, and 1-hour NO_2 emission rates for the emission sources at these four facilities were provided by the SCAQMD[1]. Attachment 2 includes copies of the SCAQMD correspondence.

The cumulative impacts of the RBEP and competing sources were assessed for all receptors where RBEP impacts alone exceeded the 1-hour NO_2 SIL. Table SCAQMD-3 presents a summary of the maximum predicted cumulative 1-hour NO_2 impacts from RBEP operation and competing sources as well as a comparison to the NAAQS. As shown in Table SCAQMD-3, the predicted RBEP cumulative impacts, including a representative background NO_2 concentration, are below the NAAQS.

[1] SCAQMD staff provided information for Exxon Mobile Oil Corporation (Facility ID 800089) through a Public Records Request on June 19, 2013; information for Chevron Products Corporation (Facility ID 800030) via e-mail on September 5, 2013; and information for Scattergood Generating Station (Facility ID 800075) and El Segundo Power, LLC (Facility ID 115663) via e-mail on October 3, 2013.

TABLE SCAQMD-3
RBEP and Competing Source Predicted 1-hour NO_2 Impacts Compared to the NAAQS

Pollutant	Averaging Time	Total Predicted Concentration ($\mu g/m^3$) [a]	Federal Standard ($\mu g/m^3$)
NO_2	1-hour	146	188

[a] Total predicted concentration for the Federal 1-hour NO_2 standard is the maximum modeled concentration paired with the 3-year average of 98th percentile seasonal hour-of-day background concentrations, as provided by the SCAQMD.

The Federal 1-hour NO_2 impacts presented in Tables SCAQMD-1 and SCAQMD-3 cannot be directly compared primarily due to the different methods used to derive the applicable background concentrations (in addition to the receptor domains and the emission sources). In the case of Table SCAQMD-1, the background concentration used represents the 3-year average of 98th percentile background concentrations. Use of the 3-year average of 98th percentile background concentrations assumes this value occurs every hour of the year, which is not consistent with monitoring data. The SCAQMD provided representative 3-year average of the 98th percentile seasonal hour-of-day background concentrations for use in this analysis. These seasonal hour-of-day background NO_2 concentrations are based on actual monitoring data, resulting in the more refined NO_2 impact assessment presented in Table SCAQMD-3.

A summary of the dispersion modeling input files for this analysis, as well as the modeling parameters used, are presented in Attachment 3. The AERMOD input and output files have been separately prepared and are included with this submission on compact disc.

References

U.S. Environmental Protection Agency (EPA). 2005. *Guideline on Air Quality Models*, 40 Code of Federal Regulations 51, Appendix W. November.

U.S. Environmental Protection Agency (EPA). 2011. *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard*. EPA Office of Air Quality Planning and Standards. March 1.

2) Revised Class II Visibility Impact Area Analysis

Response: As requested, a visibility analysis for Class II areas within 50 km of RBEP was performed using the VISCREEN plume modeling program per the procedures outlined in the *Workbook for Plume Visual Impact Screening and Analysis* (EPA, 1992), as further described in Attachment 4. Please note that the VISCREEN Tier I and II assessments were conducted using criteria for Class I areas, as no criteria exist for Class II areas. Therefore, the visibility assessment was conducted using overly conservative assumptions for Class II areas. However, even using the conservative approach, the modeled results from the visual assessment demonstrates that RBEP would not adversely affect visibility at nearby Class II Areas.

Table SCAQMD-4 summarizes the VISCREEN Tier I modeled results for each Class II area evaluated.[2] The maximum modeled values for color difference and contrast are presented for inside the area analyzed, regardless of the VISCREEN modeled lines of sight for the observer.

TABLE SCAQMD-4
RBEP Tier I VISCREEN Results

Class II Area	Minimum Distance	Maximum Distance	Variable	Sky	Terrain	Criteria [a]
Kenneth Hahn State Park	16.9	18.9	Color Difference	1.011	**2.79**	2.0
			Contrast	0.01	0.018	|0.05|
Will Rogers State Park and Topanga State Park [b]	24.6	34.7	Color Difference	1.247	1.772	2.0
			Contrast	-0.013	0.013	|0.05|
Malibu Creek State Park and Malibu Lagoon State Park [c]	33.2	43.6	Color Difference	0.911	1.208	2.0
			Contrast	0.009	0.011	|0.05|

Bold values exceed the Class I significant impact criterion.
[a] Levels of concern for Class I areas were used because no specific requirements or criteria exist for assessing Class II visibility impacts (Federal Land Managers [FLM], 2010).
[b] Assumed Will Rogers State Park and Topanga State Park cover the same area since they are directly adjacent to one another.
[c] Assumed Malibu Creek State Park and Malibu Lagoon State Park cover the same area since they are directly adjacent to one another.

As shown in Table SCAQMD-4, the results of the Tier I assessment demonstrate that the proposed RBEP would be below the significance criterion for both color difference and contrast at Will Rogers State Park, Topanga State Park, Malibu Creek State Park, and Malibu Lagoon State Park. The Tier I assessment did, however, exceed the criterion for color difference at Kenneth Hahn State Park. As a result, a Tier II assessment was performed for the Kenneth Hahn State Park. The Tier II assessment utilized the Los Angeles International Airport AERMET meteorological dataset for years 2005 through 2009, to determine representative worst-case single combinations of wind speed, wind direction, and atmospheric stability for

[2] SCAQMD staff approved the Class II areas for evaluation via e-mail on June 20, 2013.

each Class II area above the screening criteria. The Tier II assessment results are summarized in Table SCAQMD-5.

TABLE SCAQMD-5
RBEP Tier II VISCREEN Results

Class II Area	Minimum Distance	Maximum Distance	Wind Speed [a]	Stability [a]	Variable	Sky	Terrain	Criteria [b]
Kenneth Hahn State Park	16.9	18.9	3	E	Color Difference	0.387	0.795	2.0
					Contrast	0.004	0.004	|0.05|

[a] The Joint Frequency Distribution table used to calculate the wind speed and stability for the Tier II assessment is presented in Attachment 4.
[b] Levels of concern for Class I areas were used because no specific requirements or criteria exist for assessing Class II visibility impacts (FLM, 2010).

The RBEP VISCREEN Tier II assessment for Kenneth Hahn State Park did not exceed the criterion for color difference or contrast. As the modeled results are below the conservative Class I area criterion for both color difference and contrast, RBEP would not adversely affect visibility at these or other nearby Class II areas. The VISCREEN input and output files, as well as the meteorological data used in this analysis, have been separately prepared and are included with this submission on compact disc.

References

Federal Land Managers (FLM). 2010. *Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report – Revised (2010)*. October.

U.S. Environmental Protection Agency (EPA). 1992. *Workbook for Plume Visual Impact Screening and Analysis* (EPA-454/R-92-023). October.

3) SCAQMD Rule 1401 Compliance

Response: A summary of the maximum individual cancer risk (MICR), chronic health index, and acute health index at the point of maximum impact (PMI) locations, as well as the maximum predicted public health impacts for worker, residential, and sensitive receptors, has been included in Table SCAQMD-6. In accordance with SCAQMD Rule 1401, the results in Table SCAQMD-6 represent the predicted risk for each individual emission unit. The operational health risk assessment modeling followed the methodology outlined in AFC Section 5.9.3.1, which was submitted to the CEC in November 2012, and includes the use of the U.S. Environmental Protection Agency's (EPA) AP-42 emission factors and the SCAQMD-recommended formaldehyde emission factor. The HARP report files have been separately prepared and are included with this submission on compact disc.

As presented in Table SCAQMD-6, the MICR at the PMI for an individual turbine is predicted to be 0.73 in 1 million. The MICR for the Maximally Exposed Individual Resident (MEIR) is predicted to be 0.70 in 1 million (Derived Adjusted) for an individual unit, and the MICR for the Maximally Exposed Individual Worker (MEIW) is predicted to be 0.13 in 1 million for an individual unit. The MICR at the maximally exposed sensitive receptor is predicted to be 0.46 in 1 million for an individual unit. Overall, the predicted MICR for

the MEIR, MEIW, and the maximally exposed sensitive receptor are well below the individual source significance threshold of 1 in 1 million. Therefore, based on SCAQMD Rule 1401, the predicted incremental increase in cancer risk from each individual unit will be less than significant, and best available control technology for toxic organic compounds (T-BACT) would not be required. However, while not required, the emission control technologies included in this project are considered to be T-BACT.

The maximum chronic health index for an individual unit at the PMI is predicted to be 0.0022. The maximum acute health index for an individual unit at the PMI is predicted to be 0.022. The predicted chronic and acute health indices are well below the SCAQMD individual source significance threshold of 1.0. Therefore, the predicted impact from each individual unit will be less than significant, and T-BACT will not be required. However, as previously noted, the emission control technologies included in this project are considered to be T-BACT.

TABLE SCAQMD-6
Operation: Health Risk Assessment Summary – Individual Units

Risk	Turbine 1	Turbine 2	Turbine 3
Cancer Risk at the PMI [a] (per million)	0.73	0.67	0.66
Cancer Risk at the PMI [b] (per million)	0.71	0.65	0.65
Cancer Risk at the MEIR [b] (per million)	0.70	0.65	0.65
Highest Cancer Risk at a Sensitive Receptor [b] (per million)	0.46	0.42	0.41
Cancer Risk at the MEIW (per million)	0.13	0.12	0.12
Chronic Hazard Index at the PMI	0.0022	0.0020	0.0020
Resident Chronic Hazard Index	0.0022	0.0020	0.0020
Worker Chronic Hazard Index	0.0022	0.0020	0.0020
Chronic Hazard Index at a Sensitive Receptor	0.0014	0.0013	0.0013
Acute Hazard Index at the PMI	0.022	0.015	0.011
Resident Acute Hazard Index	0.010	0.010	0.0094
Worker Acute Hazard Index	0.022	0.015	0.011
Acute Hazard Index at a Sensitive Receptor	0.011	0.012	0.0093

[a] Cancer risk values represent the Office of Environmental Health Hazard Assessment (OEHHA) Derived Methodology.
[b] Risk values represent the Derived Adjusted Methodology.

If you require further information, please don't hesitate contacting me at 562-493-7840.

Sincerely,

Stephen O'Kane
Manager
AES Redondo Beach, LLC
Attachments

cc: Vicky Lee/SCAQMD w/o CD
Jillian Baker/SCAQMD
Sarah Madams/CH2M HILL w/o CD
Jennifer Didlo/AES w/o CD
Gregg Wheatland/ESH
Jerry Salamy/CH2M HILL w/o CD
Patricia Kelly/CEC
Tom Chico/SCAQMD w/o CD
Cleveland Holladay/USEPA
Carol Bohnenkamp/USEPA w/o CD

Attachment 1
RBEP Operational Impact Assessment

Redondo Beach Energy Project
Attachment 1 Table 1
Operational Modeling Parameters - Stack Parameters
October 2013

Point Sources

Scenario	Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
	Stack 1	371060	3746515	4.4	42.7	476	24.1	5.49
1	Stack 2	371096	3746520	4.4	42.7	476	24.1	5.49
	Stack 3	371132	3746525	4.4	42.7	476	24.1	5.49
	Stack 1	371060	3746515	4.4	42.7	479	24.1	5.49
2	Stack 2	371096	3746520	4.4	42.7	479	24.1	5.49
	Stack 3	371132	3746525	4.4	42.7	479	24.1	5.49
	Stack 1	371060	3746515	4.4	42.7	474	21.6	5.49
3	Stack 2	371096	3746520	4.4	42.7	474	21.6	5.49
	Stack 3	371132	3746525	4.4	42.7	474	21.6	5.49
	Stack 1	371060	3746515	4.4	42.7	469	19.1	5.49
4	Stack 2	371096	3746520	4.4	42.7	469	19.1	5.49
	Stack 3	371132	3746525	4.4	42.7	469	19.1	5.49
	Stack 1	371060	3746515	4.4	42.7	463	16.7	5.49
5	Stack 2	371096	3746520	4.4	42.7	463	16.7	5.49
	Stack 3	371132	3746525	4.4	42.7	463	16.7	5.49
	Stack 1	371060	3746515	4.4	42.7	475	22.8	5.49
6	Stack 2	371096	3746520	4.4	42.7	475	22.8	5.49
	Stack 3	371132	3746525	4.4	42.7	475	22.8	5.49
	Stack 1	371060	3746515	4.4	42.7	477	22.8	5.49
7	Stack 2	371096	3746520	4.4	42.7	477	22.8	5.49
	Stack 3	371132	3746525	4.4	42.7	477	22.8	5.49
	Stack 1	371060	3746515	4.4	42.7	472	20.4	5.49
8	Stack 2	371096	3746520	4.4	42.7	472	20.4	5.49
	Stack 3	371132	3746525	4.4	42.7	472	20.4	5.49
	Stack 1	371060	3746515	4.4	42.7	467	18.2	5.49
9	Stack 2	371096	3746520	4.4	42.7	467	18.2	5.49
	Stack 3	371132	3746525	4.4	42.7	467	18.2	5.49
	Stack 1	371060	3746515	4.4	42.7	462	16.0	5.49
10	Stack 2	371096	3746520	4.4	42.7	462	16.0	5.49
	Stack 3	371132	3746525	4.4	42.7	462	16.0	5.49
	Stack 1	371060	3746515	4.4	42.7	486	22.7	5.49
11	Stack 2	371096	3746520	4.4	42.7	486	22.7	5.49
	Stack 3	371132	3746525	4.4	42.7	486	22.7	5.49
	Stack 1	371060	3746515	4.4	42.7	481	22.3	5.49
12	Stack 2	371096	3746520	4.4	42.7	481	22.3	5.49
	Stack 3	371132	3746525	4.4	42.7	481	22.3	5.49
	Stack 1	371060	3746515	4.4	42.7	471	18.8	5.49
13	Stack 2	371096	3746520	4.4	42.7	471	18.8	5.49
	Stack 3	371132	3746525	4.4	42.7	471	18.8	5.49
	Stack 1	371060	3746515	4.4	42.7	467	17.0	5.49
14	Stack 2	371096	3746520	4.4	42.7	467	17.0	5.49
	Stack 3	371132	3746525	4.4	42.7	467	17.0	5.49
	Stack 1	371060	3746515	4.4	42.7	463	15.1	5.49
15	Stack 2	371096	3746520	4.4	42.7	463	15.1	5.49
	Stack 3	371132	3746525	4.4	42.7	463	15.1	5.49

Redondo Beach Energy Project
Attachment 1 Table 2
Operational Modeling Parameters - Emission Rates
October 2013

Per Turbine Emission Rates for 1-hr, 3-hr, 8-hr, and 24-hr Emissions Scenarios

	1-hr NO_2		1-hr CO		8-hr CO		1-hr SO_2		3-hr SO_2		24-hr SO_2		24-hr PM_{10}		24-hr $PM_{2.5}$	
Scenario	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)
1	3.21	25.4	14.35	114	6.09	48.3	0.33	2.63	0.33	2.63	0.33	2.63	1.20	9.50	1.20	9.50
2	3.21	25.4	14.35	114	5.91	46.9	0.25	1.96	0.25	1.96	0.25	1.96	0.57	4.50	0.57	4.50
3	3.21	25.4	14.35	114	5.86	46.5	0.22	1.78	0.22	1.78	0.22	1.78	0.57	4.50	0.57	4.50
4	3.21	25.4	14.35	114	5.82	46.2	0.20	1.60	0.20	1.60	0.20	1.60	0.57	4.50	0.57	4.50
5	3.21	25.4	14.35	114	5.78	45.8	0.18	1.44	0.18	1.44	0.18	1.44	0.57	4.50	0.57	4.50
6	3.21	25.4	14.35	114	6.06	48.1	0.32	2.51	0.32	2.51	0.32	2.51	1.20	9.50	1.20	9.50
7	3.21	25.4	14.35	114	5.88	46.7	0.23	1.84	0.23	1.84	0.23	1.84	0.57	4.50	0.57	4.50
8	3.21	25.4	14.35	114	5.83	46.3	0.21	1.66	0.21	1.66	0.21	1.66	0.57	4.50	0.57	4.50
9	3.21	25.4	14.35	114	5.79	46.0	0.19	1.50	0.19	1.50	0.19	1.50	0.57	4.50	0.57	4.50
10	3.21	25.4	14.35	114	5.75	45.7	0.17	1.35	0.17	1.35	0.17	1.35	0.57	4.50	0.57	4.50
11	3.21	25.4	14.35	114	6.04	47.9	0.31	2.45	0.31	2.45	0.31	2.45	1.20	9.50	1.20	9.50
12	3.21	25.4	14.35	114	5.87	46.6	0.22	1.78	0.22	1.78	0.22	1.78	0.57	4.50	0.57	4.50
13	3.21	25.4	14.35	114	5.79	45.9	0.19	1.48	0.19	1.48	0.19	1.48	0.57	4.50	0.57	4.50
14	3.21	25.4	14.35	114	5.75	45.7	0.17	1.35	0.17	1.35	0.17	1.35	0.57	4.50	0.57	4.50
15	3.21	25.4	14.35	114	5.72	45.4	0.15	1.22	0.15	1.22	0.15	1.22	0.57	4.50	0.57	4.50

Per Turbine Emission Rates for Annual Average Emissions Scenarios

	Annual NO_2		Annual PM_{10}		Annual $PM_{2.5}$	
Scenario	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)
7	1.16	9.24	0.48	3.78	0.48	3.78
8	1.08	8.55	0.48	3.78	0.48	3.78
9	1.00	7.96	0.48	3.78	0.48	3.78
10	0.94	7.43	0.48	3.78	0.48	3.78

Redondo Beach Energy Project
Attachment 1 Table 3
Operational Building Parameters for AERMOD Input
October 2013

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 1 East (X) (m)	Corner 1 North (Y) (m)	Corner 2 East (X) (m)	Corner 2 North (Y) (m)	Corner 3 East (X) (m)	Corner 3 North (Y) (m)	Corner 4 East (X) (m)	Corner 4 North (Y) (m)	Corner 5 East (X) (m)	Corner 5 North (Y) (m)	Corner 6 East (X) (m)	Corner 6 North (Y) (m)
offsite1	1	1	7.00	6.10	8	371099	3746803	371114	3746808	371121	3746790	371136	3746748	371136	3746731	371122	3746730
offsite2	1	1	7.22	6.10	4	371125	3746705	371142	3746707	371177	3746474	371162	3746472				
offsite3	1	1	9.91	12.19	23	371178	3746442	371211	3746443	371211	3746431	371220	3746430	371226	3746361	371212	3746360
STG	1	1	4.42	12.19	4	371105	3746567	371114	3746548	371133	3746557	371124	3746575				
acc	1	1	4.42	25.30	4	371033	3746607	371054	3746560	371110	3746585	371089	3746633				
Admin	1	1	4.42	5.79	4	370986	3746523	371004	3746484	371024	3746493	371006	3746531				
FGComp	1	1	4.42	7.62	4	370960	3746582	370975	3746547	370993	3746555	370978	3746589				
CTGBLDG	2	1	4.42	18.44	4	371038	3746510	371140	3746525	371150	3746460	371048	3746445				
CTGBLDG	*	2	*	25.45	4	371038	3746510	371140	3746525	371144	3746495	371043	3746481				
wall	1	1	4.42	27.13	8	371000	3746612	370958	3746580	371037	3746405	371071	3746410	371072	3746409	371036	3746404
finfan	1	1	4.42	4.57	4	371078	3746564	371104	3746568	371106	3746553	371080	3746549				
Trans1	1	1	4.42	9.14	4	371049	3746430	371061	3746432	371064	3746417	371052	3746415				
Trans2	1	1	4.42	9.14	4	371085	3746436	371097	3746438	371100	3746423	371088	3746421				
Trans3	1	1	4.42	9.14	4	371121	3746442	371133	3746443	371135	3746428	371123	3746426				

Redondo Beach Energy Project
Attachment 1 Table 3
Operational Building Parameters for AERMOD Input
October 2013

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 7 East (X) (m)	Corner 7 North (Y) (m)	Corner 8 East (X) (m)	Corner 8 North (Y) (m)	Corner 9 East (X) (m)	Corner 9 North (Y) (m)	Corner 10 East (X) (m)	Corner 10 North (Y) (m)	Corner 11 East (X) (m)	Corner 11 North (Y) (m)	Corner 12 East (X) (m)	Corner 12 North (Y) (m)
offsite1	1	1	7.00	6.10	8	371120	3746746	371107	3746784								
offsite2	1	1	7.22	6.10	4												
offsite3	1	1	9.91	12.19	23	371217	3746295	371207	3746295	371212	3746288	371215	3746282	371216	3746275	371212	3746270
STG	1	1	4.42	12.19	4												
acc	1	1	4.42	25.30	4												
Admin	1	1	4.42	5.79	4												
FGComp	1	1	4.42	7.62	4												
CTGBLDG	2	1	4.42	18.44	4												
CTGBLDG	*	2	*	25.45	4												
wail	1	1	4.42	27.13	8	370956	3746580	370999	3746613								
finfan	1	1	4.42	4.57	4												
Trans1	1	1	4.42	9.14	4												
Trans2	1	1	4.42	9.14	4												
Trans3	1	1	4.42	9.14	4												

Redondo Beach Energy Project
Attachment 1 Table 3
Operational Building Parameters for AERMOD Input
October 2013

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 13 East (X) (m)	Corner 13 North (Y) (m)	Corner 14 East (X) (m)	Corner 14 North (Y) (m)	Corner 15 East (X) (m)	Corner 15 North (Y) (m)	Corner 16 East (X) (m)	Corner 16 North (Y) (m)	Corner 17 East (X) (m)	Corner 17 North (Y) (m)	Corner 18 East (X) (m)	Corner 18 North (Y) (m)
offsite1	1	1	7.00	6.10	8												
offsite2	1	1	7.22	6.10	4												
offsite3	1	1	9.91	12.19	23	371207	3746264	371197	3746263	371190	3746265	371184	3746273	371185	3746281	371188	3746289
STG	1	1	4.42	12.19	4												
acc	1	1	4.42	25.30	4												
Admin	1	1	4.42	5.79	4												
FGComp	1	1	4.42	7.62	4												
CTGBLDG	2	1	4.42	18.44	4												
CTGBLDG	*	2	*	25.45	4												
wail	1	1	4.42	27.13	8												
finfan	1	1	4.42	4.57	4												
Trans1	1	1	4.42	9.14	4												
Trans2	1	1	4.42	9.14	4												
Trans3	1	1	4.42	9.14	4												

Redondo Beach Energy Project
Attachment 1 Table 3
Operational Building Parameters for AERMOD Input
October 2013

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 19 East (X) (m)	Corner 19 North (Y) (m)	Corner 20 East (X) (m)	Corner 20 North (Y) (m)	Corner 21 East (X) (m)	Corner 21 North (Y) (m)	Corner 22 East (X) (m)	Corner 22 North (Y) (m)	Corner 23 East (X) (m)	Corner 23 North (Y) (m)
offsite1	1	1	7.00	6.10	8										
offsite2	1	1	7.22	6.10	4										
offsite3	1	1	9.91	12.19	23	371188	3746293	371174	3746436	371178	3746437	371178	3746441	371178	3746441
STG	1	1	4.42	12.19	4										
acc	1	1	4.42	25.30	4										
Admin	1	1	4.42	5.79	4										
FGComp	1	1	4.42	7.62	4										
CTGBLDG	2	1	4.42	18.44	4										
CTGBLDG	*	2	*	25.45	4										
wail	1	1	4.42	27.13	8										
finfan	1	1	4.42	4.57	4										
Trans1	1	1	4.42	9.14	4										
Trans2	1	1	4.42	9.14	4										
Trans3	1	1	4.42	9.14	4										

Redondo Beach Energy Project
Attachment 1 Table 4
Operational Modeling Results Summary
October 2013

Case 1: 33°F, 100% Load with Duct Burner Firing

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	15.4	-	86	14.1	1.99	1.22	0.28	1.03	-	1.03	-
2006	14.3	-	79.9	13.8	1.84	1.19	0.32	1.17	-	1.17	-
2007	13.4	-	75.1	18.4	1.73	1.47	0.34	1.23	-	1.23	-
2008	25.9	-	145.1	10.7	3.35	1.25	0.24	0.87	-	0.87	-
2009	12.3	-	69	14.8	1.59	1.22	0.29	1.04	-	1.04	-

Case 2: 33°F, 100% Load

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	15.4	-	86	13.6	1.48	0.91	0.21	0.48	-	0.48	-
2006	14.2	-	79.6	13.3	1.37	0.88	0.24	0.55	-	0.55	-
2007	13.4	-	74.8	17.8	1.29	1.09	0.25	0.58	-	0.58	-
2008	25.9	-	145.1	10.4	2.50	0.92	0.18	0.41	-	0.41	-
2009	12.3	-	69	14.3	1.18	0.90	0.21	0.49	-	0.49	-

Case 3: 33°F, 90% Load

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	17.4	-	97	15.3	1.52	0.89	0.22	0.55	-	0.55	-
2006	15.5	-	86.5	22.5	1.35	1.14	0.35	0.87	-	0.87	-
2007	15.7	-	87.6	21.9	1.37	1.08	0.30	0.75	-	0.75	-
2008	27.5	-	153.8	11.5	2.41	0.94	0.18	0.45	-	0.45	-
2009	13.6	-	76	16.7	1.19	0.90	0.22	0.55	-	0.55	-

Case 4: 33°F, 80% Load

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	20.0	-	112	17.8	1.57	0.97	0.24	0.69	-	0.69	-
2006	17.8	-	99.4	29.5	1.39	1.30	0.43	1.20	-	1.20	-
2007	17.8	-	100	23.8	1.40	1.06	0.29	0.83	-	0.83	-
2008	29.3	-	164.1	13.6	2.30	0.95	0.18	0.51	-	0.51	-
2009	17.2	-	96	18.3	1.35	0.88	0.22	0.61	-	0.61	-

Case 5: 33°F, 70% Load

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	22.9	-	128	23.5	1.61	1.06	0.26	0.83	-	0.83	-
2006	24.1	-	135	33.1	1.70	1.32	0.46	1.44	-	1.44	-
2007	20.1	-	113	27.2	1.42	1.10	0.31	0.96	-	0.96	-
2008	31.0	-	174	16.9	2.19	0.98	0.19	0.60	-	0.60	-
2009	20.3	-	114	20.2	1.43	0.88	0.23	0.71	-	0.71	-

Case 6: 63.3°F, 100% Load with Duct Burner Firing

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	16.5	-	93	14.6	2.04	1.21	0.29	1.12	-	1.12	-
2006	14.8	-	83.0	16.1	1.83	1.27	0.36	1.35	-	1.35	-
2007	14.0	-	78.5	19.1	1.73	1.46	0.34	1.28	-	1.28	-
2008	26.9	-	150.6	11.1	3.32	1.25	0.24	0.91	-	0.91	-
2009	12.9	-	72	16.4	1.59	1.20	0.29	1.11	-	1.11	-

Case 7: 63.3°F, 100% Load

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	16.5	0.27	92	14.1	1.49	0.88	0.21	0.53	0.15	0.53	0.15
2006	14.8	0.24	82.8	15.6	1.33	0.93	0.26	0.64	0.13	0.64	0.13
2007	14.0	0.25	78.3	18.5	1.26	1.07	0.25	0.61	0.14	0.61	0.14
2008	26.9	0.26	150.7	10.7	2.43	0.92	0.17	0.43	0.14	0.43	0.14
2009	12.9	0.26	72	15.9	1.16	0.88	0.21	0.52	0.14	0.52	0.14

Case 8: 63.3°F, 90% Load

	NO_2 ($\mu g/m^3$)		CO ($\mu g/m^3$)		SO_2 ($\mu g/m^3$)			PM_{10} ($\mu g/m^3$)		$PM_{2.5}$ ($\mu g/m^3$)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	18.4	0.28	103	16.9	1.50	0.86	0.22	0.58	0.17	0.58	0.17
2006	16.1	0.25	90.3	23.3	1.31	1.11	0.34	0.92	0.15	0.92	0.15
2007	16.2	0.26	90.7	22.7	1.32	1.05	0.29	0.79	0.15	0.79	0.15
2008	28.4	0.27	158.9	12.4	2.32	0.92	0.17	0.47	0.16	0.47	0.16
2009	14.6	0.28	82	17.4	1.19	0.87	0.21	0.58	0.16	0.58	0.16

Redondo Beach Energy Project
Attachment 1 Table 4
Operational Modeling Results Summary
October 2013

Case 9: 63.3°F, 80% Load

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	21.1	0.30	118	17.9	1.55	0.93	0.24	0.71	0.19	0.71	0.19
2006	18.6	0.26	104.0	30.4	1.37	1.26	0.43	1.29	0.17	1.29	0.17
2007	18.4	0.27	103	24.6	1.35	1.03	0.29	0.86	0.17	0.86	0.17
2008	29.8	0.28	167	14.4	2.20	0.94	0.18	0.54	0.18	0.54	0.18
2009	17.8	0.29	100	18.9	1.31	0.86	0.22	0.65	0.18	0.65	0.18

Case 10: 63.3°F, 70% Load

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	24.7	0.32	138	25.0	1.63	1.11	0.27	0.90	0.21	0.90	0.21
2006	26.1	0.29	146	35.3	1.73	1.33	0.48	1.61	0.19	1.61	0.19
2007	22.9	0.29	128	29.2	1.52	1.17	0.31	1.03	0.20	1.03	0.20
2008	31.5	0.30	176	17.5	2.09	1.01	0.19	0.63	0.20	0.63	0.20
2009	20.8	0.31	116	20.7	1.38	1.02	0.22	0.73	0.21	0.73	0.21

Case 11: 106°F, 100% Load with Duct Burner Firing

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	15.9	-	89	14.3	1.91	1.16	0.27	1.06	-	1.06	-
2006	14.6	-	81.6	15.7	1.75	1.21	0.34	1.32	-	1.32	-
2007	13.8	-	77.2	18.7	1.66	1.40	0.32	1.26	-	1.26	-
2008	27.0	-	150.8	10.8	3.24	1.19	0.23	0.89	-	0.89	-
2009	12.6	-	70	15.6	1.51	1.15	0.27	1.06	-	1.06	-

Case 12: 106°F, 100% Load

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	16.6	-	93	14.4	1.45	0.86	0.21	0.53	-	0.53	-
2006	14.9	-	83.3	15.6	1.30	0.90	0.25	0.64	-	0.64	-
2007	14.1	-	78.7	18.5	1.23	1.04	0.24	0.61	-	0.61	-
2008	27.1	-	151.8	10.8	2.37	0.89	0.17	0.43	-	0.43	-
2009	12.9	-	72	16.0	1.13	0.86	0.21	0.53	-	0.53	-

Case 13: 106°F, 90% Load

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	20.1	-	113	17.3	1.46	0.90	0.23	0.69	-	0.69	-
2006	17.8	-	99.9	29.5	1.29	1.21	0.40	1.21	-	1.21	-
2007	17.9	-	100	23.8	1.30	0.99	0.27	0.83	-	0.83	-
2008	29.5	-	165	13.6	2.14	0.89	0.17	0.52	-	0.52	-
2009	17.4	-	97	18.3	1.26	0.82	0.20	0.62	-	0.62	-

Case 14: 106°F, 80% Load

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	22.3	-	125	22.6	1.48	0.97	0.24	0.80	-	0.80	-
2006	22.8	-	127	31.6	1.51	1.19	0.41	1.38	-	1.38	-
2007	19.2	-	107	25.8	1.27	0.97	0.27	0.91	-	0.91	-
2008	30.6	-	171	16.4	2.03	0.89	0.18	0.59	-	0.59	-
2009	18.5	-	104	19.7	1.23	0.81	0.21	0.69	-	0.69	-

Case 15: 106°F, 70% Load

	NO_2 (µg/m^3)		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
Year	1-hr	Annual	1-hr	8-hr	1-hr	3-hr	24-hr	24-hr	Annual	24-hr	Annual
2005	26.3	-	147	26.4	1.57	1.04	0.25	0.93	-	0.93	-
2006	27.6	-	154	38.0	1.65	1.32	0.47	1.73	-	1.73	-
2007	25.8	-	145	31.3	1.54	1.18	0.30	1.11	-	1.11	-
2008	32.1	-	179	21.2	1.92	0.94	0.20	0.76	-	0.76	-
2009	21.4	-	120	21.4	1.28	1.05	0.20	0.75	-	0.75	-

The maximum 1-hour and annual NO_2 concentrations include ambient NO_2 ratios of 0.80 and 0.75, respectively.

Attachment 2
RBEP SCAQMD Correspondence Related to Competing Sources

Engel, Elyse/SJC

From: Lisa Ramos [lramos1@aqmd.gov]
Sent: Wednesday, June 19, 2013 1:45 PM
To: Shapiro, Jeff/SFB
Cc: OB PR Support NA Docs
Subject: FW: #72953,
Attachments: 800089 - ExxonMobil.xlsx

JEFF SHAPIRO

CONTROL 72953

I HAVE ATTACHED THE REQUESTED INFORMATION FOR YOUR REQUEST.

Lisa Ramos
Public Records Unit
909.396.3211

Engel, Elyse/SJC

From: Lisa Ramos [lramos1@aqmd.gov]
Sent: Wednesday, June 19, 2013 1:45 PM
To: Shapiro, Jeff/SFB
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Attachments: 800089 - ExxonMobil.xlsx

JEFF SHAPIRO
CONTROL 72953

I HAVE ATTACHED THE REQUESTED INFORMATION FOR YOUR REQUEST.

Lisa Ramos
Public Records Unit
909.396.3211

Information Management
Public Records Unit

Direct Dial (909) 396-3700
Fax:(909) 396-3330

COMPLETION LETTER

June 19, 2013

JEFF SHAPIRO
CH2M HILL
150 SPEAR ST.# SUITE 750
SAN FRANCISCO, CA 94105

Ref.: CONTROL NO. 72953
Received 6/4/2013

Re: RECENT AB2588 (AIR TOXICS HOT SPOTS) & SUPPORTING HARP TRANSACTION & DISPERSION MODELING FILES (ID 800089).

After a thorough search of this agency's records, the following records were found:
RECENT AB2588 (AIR TOXICS HOT SPOTS) & SUPPORTING HARP TRANSACTION & DISPERSION MODELING FILES (ID 800089).

YOUR REQUESTED RECORDS WERE PROVIDED ELECTRONICALLY ON 06/19/2013

If you have any questions, please do not hesitate to contact me, Tuesday through Friday, **8:00 a.m**. to **4:30 p.m.**

Sincerely,

LISA RAMOS x3211
For Colleen Paine
Public Records Coordinator

:lr

Exxon Mobile Corporation (Facility ID 800089)

Source Type	ID	X (m)	Y (m)	Elevation (m)	Emission Rate (lb/hr)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)
POINT	80008901	376802.8983	3746635.787	20	0.02	30.48	2.68	17.03	493.71
POINT	80008902	376790.8979	3746757.788	19.8	0.02	36.58	2.21	4.99	627.04
POINT	80008903	376806.8976	3746819.789	19	17.443	22.86	1.97	16.16	487.04
POINT	80008904	376796.8976	3746839.789	19	49.02	27.43	3.35	27.71	557.59
POINT	80008905	376669.8985	3746639.786	20	0.714	36.58	1.74	11.09	617.59
POINT	80008906	376690.8984	3746639.786	20	0.446	49.68	1.71	9.59	394.26
POINT	80008907	376621.8979	3746823.787	20	22.58	28.65	1.65	20	514.26
POINT	80008908	376613.8979	3746823.787	20	22.58	28.65	1.65	20	514.26
POINT	80008909	376943.8978	3746684.789	18	0.223	21.34	1.22	8.26	632.04
POINT	80008910	376943.8979	3746671.789	18	0.223	19.81	1.51	6.51	603.71
POINT	80008911	376798.8971	3746957.791	18	0.01	30.48	3.17	5.26	613.71
POINT	80008912	376797.8974	3746877.79	19	23	36.27	1.91	5.47	590.93
POINT	80008913	376786.8985	3746575.786	20	4.305	39.62	1.4	8.9	589.26
POINT	80008914	376786.8986	3746545.786	20	3.668	39.62	1.4	8.87	545.37
POINT	80008915	376785.8987	3746513.785	20	5.398	39.62	1.4	5.82	482.04
POINT	80008916	376785.8988	3746486.785	20.7	4.157	39.17	1.98	5.3	579.26
POINT	80008917	376784.8989	3746450.784	21	0.223	39.62	1.49	9.15	595.37
POINT	80008918	376784.8991	3746420.784	21	0.223	39.62	1.49	10.49	595.37
POINT	80008919	376532.8987	3746644.784	20	33.223	30.48	3.73	21.7	518.71
POINT	80008920	376426.8984	3746790.785	20	0.753	45.72	1.62	9.5	443.45
POINT	80008921	376279.8995	3746540.781	22	0.13	45.72	1.95	2.88	927.04
POINT	80008922	376475.8992	3746523.782	21	0.223	45.72	2.29	8.46	660.37
POINT	80008923	376717.8978	3746814.788	20	0.223	30.48	1.77	7.95	460.37
POINT	80008924	376729.8978	3746814.788	20	0.223	30.48	1.77	8.17	473.15
POINT	80008925	377999.7261	3746802.288	16.9	0.6	7.32	0.91	1.22	969.82
POINT	80008926	376746.8984	3746634.786	20	15.755	16.76	2.26	7.4	532.04
POINT	80008927	376797.8975	3746860.789	19	22	36.27	1.75	5.23	526.48
POINT	80008928	376192.9001	3746281.777	23	0.223	24.38	0.99	7.44	750.93
POINT	80008929	376214.7726	3746275.452	23	0.223	5.49	0.91	0.36	1088.71

Engel, Elyse/SJC

Subject: FW: RBEP Response to Public Records Request #72953
Attachments: 800030 - Chevron.xlsx

From: Jillian Baker [mailto:jbaker@aqmd.gov]
Sent: Thursday, September 05, 2013 6:29 PM
To: Salamy, Jerry/SAC; stephen.okane@AES.com
Cc: Tom Chico; Andrew Lee; John Yee; Charles Tupac; Vicky Lee
Subject: Response to Public Records Request #72953

Hi Jerry,

Attached are the parameters to use for Chevron (ID 800030). Please let me know if you have any questions.

You can process this facility with no building downwash.

Jillian Baker, Ph.D.
South Coast AQMD
21865 Copley Drive,
Diamond Bar, CA 91765
Direct: 909.396.3176

Chevron Products Corporation (Facility ID 800030)

Source Type	ID	UTM (NAD83) X (m)	UTM (NAD83) Y (m)	Elevation (m)	Emission Rate (lb/hr)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)	Sigma Y (m)	Sigma Z (m)	Length (m)
POINT	80003001	369663.02	3752777.81	31.6	3.856	42.67	2.38	8.86	580.93			
POINT	80003002	369187.26	3753481.38	35.1	5.5	22.25	2.82	1.9	417.04			
POINT	80003003	369655	3753546	31.1	6.16	24.99	1.42	2.01	664.26			
POINT	80003004	369655	3753538	31.1	1.928	24.99	1.51	1.06	633.15			
POINT	80003005	370172.88	3752652.79	32.6	3.856	30.48	1.32	2.22	866.48			
POINT	80003006	369507.03	3753619.9	31.1	90.128	47.24	3.05	8.22	640.93			
POINT	80003007	369765.92	3753670.19	33.8	1.23	36.58	1.45	0.71	534.82			
POINT	80003008	369510.07	3753357.55	31.7	6.018	30.48	2.9	6.74	482.59			
POINT	80003009	369492.67	3753435.27	31.9	2.82	36.27	1.36	3.88	599.26			
POINT	80003010	369756	3753596	32	14.28	52.12	2.21	1.34	469.26			
POINT	80003011	369760	3753622	31.5	6.17	33.53	1.33	2.5	509.26			
POINT	80003012	368992.96	3753604.98	35.9	1.928	35.66	1.55	2.72	516.48			
POINT	80003013	368892.63	3753657.62	36.9	1.938	58.52	3.96	1.38	552.59			
POINT	80003014	369835.02	3753077.6	31.4	1.69	39.62	1.22	4.08	745.37			
POINT	80003015	370224.49	3752674.3	32.4	3.53	56.39	2.59	8.15	647.59			
POINT	80003016	370072.01	3752651.22	37.3	1.928	31.09	1.33	0.85	745.93			
POINT	80003017	370055.37	3752650.89	38.7	1.528	31.09	1.28	1.34	715.37			
POINT	80003018	369641.45	3752869.85	29.6	5.784	44.5	2.15	14.07	550.93			
POINT	80003019	370328.32	3752492.88	41.7	11.129	36.58	1.91	2.55	616.48			
POINT	80003020	370327.69	3752466.61	43.4	12.187	36.58	1.91	2.72	622.04			
POINT	80003021	370328.27	3752549.74	35.9	6.642	39.32	1.91	1.64	560.93			
POINT	80003022	370327.95	3752522.1	39	6.467	39.32	1.91	1.29	560.93			
POINT	80003023	368400	3753385	37	1.928	10.97	1.04	8.71	330.93			
POINT	80003024	370241.58	3752622.49	32	14.63	54.86	3.93	2.69	583.15			
POINT	80003025	370244.43	3752642.58	31.9	5.92	54.86	3.1	2.06	533.15			
POINT	80003026	369334.5	3753599.77	27.6	0.25	4.57	0.91	0.36	1172.04			
POINT	80003027	368724.24	3752717.76	40.6	0.25	4.57	0.84	0.58	1149.82			
POINT	80003028	370542.22	3753131.89	30.8	0.03	4.57	0.34	1.01	1069.82			
POINT	80003029	369420.87	3753391.79	30.8	1.473	10.67	0.81	0.89	1059.82			
POINT	80003030	369901.65	3752365.77	29.6	43.8	4.27	0.1	23.76	777.59			
POINT	80003031	369219.59	3753437.49	35.1	2.11	2.13	0.1	177.42	710.93			
POINT	80003032	369515	3753144	35	3.856	45.73	1.8	2.6	550			
POINT	80003033	369543	3753144	34	3.856	45.73	1.8	2.1	550			
POINT	80003034	369724	3753182	32	3.856	46.04	2.5	1.6	553			
POINT	80003035	368058.3	3754068.01	11.15	42.6	91.44	9.14	8.25	735.37			
POINT	80003036	368079.84	3753961.4	1.22	41.18	100.58	7.12	8.25	735.37			
VOLUME	80003037	369494.1	3753385.19	39.3	15.9	2.13				27.97	0.93	120.271

Engel, Elyse/SJC

Subject: FW: AES Redondo Beach - Comments on Dispersion Modeling
Attachments: 800075 - LADWP Scattergood.xlsx; 115663 - El Segundo Energy.xlsx

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From: Jillian Baker [mailto:jbaker@aqmd.gov]
Sent: Thursday, October 03, 2013 7:52 AM
To: Salamy, Jerry/SAC
Cc: Charles Tupac; Mohsen Nazemi; Tom Chico; John Yee; Gbemis@energy.state.ca.us; patricia.kelly@energy.ca.gov; stephen.okane@AES.com; Madams, Sarah/SAC; Vicky Lee
Subject: RE: AES Redondo Beach - Comments on Dispersion Modeling

Good morning Jerry,

Per your previous email, it looks like you would like to include El Segundo Energy (ID# 115663) and LADWP Scattergood (ID# 800075). Since both these projects have modifications (one approved, one undergoing review) whose emissions are not captured in the current background monitoring, it would be appropriate and a conservative approach to add them to the cumulative projects, in addition to what EPA has agreed to. I am attaching the stack parameters to be used for the 2 additional facilities to this email. Instead of sending me an Excel spreadsheet that is a consolidation of previous spreadsheets I sent you, it would be more beneficial if you sent me your AERMOD input file for review prior to modeling.

Jillian Baker, Ph.D.
South Coast AQMD
21865 Copley Drive,
Diamond Bar, CA 91765
Direct: 909.396.3176

From: Jerry.Salamy@CH2M.com [mailto:Jerry.Salamy@CH2M.com]
Sent: Friday, September 27, 2013 10:06 AM
To: Jillian Baker
Cc: Charles Tupac; Mohsen Nazemi; Tom Chico; John Yee; Gbemis@energy.state.ca.us; patricia.kelly@energy.ca.gov; stephen.okane@AES.com; Sarah.Madams@CH2M.com; Jerry.Salamy@CH2M.com
Subject: AES Redondo Beach - Comments on Dispersion Modeling

Hi Jillian,

Attached for your review is a spreadsheet containing the emission inventory (including location, emission and exhaust parameters) we proposed to include in the RBEP 1-hour cumulative NO2 impact assessment. In addition to the Chevron refinery cumulative sources you provided on 9/5 via email, we have identified a few other sources that the AQMD may want to consider for inclusion in this assessment. Once we receive the AQMD's written confirmation of the applicable sources to include in the RBEP 1-hour NO2 cumulative impact assessment, we will submit a final report (including the NO2 and Class II visibility impact assessments) within 10 business days.

As discussed in a recent call with my staff, I will be sending you a copy of the AERMOD-based meteorological dataset that will be used to develop the joint frequency distribution table needed to perform the VISCREEN Tier II analysis for the Kenneth Hahn State Park.

Thanks,

Jerry Salamy
Principal Project Manager
CH2M HILL/Sacramento

Phone 916-286-0207
Fax 916-614-3407
Cell Phone 916-769-8919

From: Jillian Baker [mailto:jbaker@aqmd.gov]
Sent: Thursday, September 05, 2013 6:18 PM
To: Salamy, Jerry/SAC; stephen.okane@AES.com
Cc: Mohsen Nazemi; Andrew Lee; Charles Tupac; John Yee; Vicky Lee; Tom Chico; Bemis, Gerry@Energy
Subject: AES Redondo Beach - Comments on Dispersion Modeling

Hi Jerry and Stephen,

I have conducted a review of the dispersion modeling performed for the Redondo Beach Energy Project and have the following comments:

1) Federal 1-hour NO2 Cumulative Impact Assessment – I spoke with EPA Region 9 and the feedback received is that the Chevron refinery (Facility ID 800030) will need to be considered in the cumulative impact assessment for the 1-hour NO2 federal standard, in addition to what has been modeled. Jerry, I will send you the modeling parameters in a separate email.
2) Class II Visibility Impact Analysis – The analysis submitted was based on the District's old ISC meteorological data for the stability class determination, which is not appropriate. In order to maintain consistency with the modeling performed for the project, we recommend that the meteorological data used for the AERMOD dispersion modeling be used for the visibility analysis. Please submit a revised visibility analysis using the AERMOD meteorological data for our review.

Please let me know if you have any questions or need additional clarification. FYI, I will be out of the office from 9/9-24, with limited email access.

Jillian Baker, Ph.D.
South Coast AQMD
21865 Copley Drive,
Diamond Bar, CA 91765
Direct: 909.396.3176

Scattergood Generating Station (Facility ID 800075)

Source Type	ID	UTM (NAD83) X (m)	UTM (NAD83) Y (m)	Elevation (m)	Emission Rate (lb/hr)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)
POINT	80007501	368058.298	3754068.01	10.4	6.89	91.4	9.14	8.25	735.37
POINT	80007502	368053.57	3754130.02	11.3	27.5	64.92	5.79	19.45	366.48
POINT	80007503	368145.4	3754122.11	31.7	17.9	30.48	4.11	28.75	661.48
POINT	80007504	368194.2	3754003.96	31.7	17.9	30.48	4.11	28.75	661.48

El Segundo Power, LLC (Facility ID 115663)

Source Type	ID	UTM (NAD83) X (m)	UTM (NAD83) Y (m)	Elevation (m)	Emission Rate (lb/hr)	Release Height (m)	Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)
POINT	11566301	368191.91	3753219.54	6.1	91.11	64	6.1	14.24	440.93
POINT	11566302	368224.2	3753149.13	6.1	91.11	64	6.1	14.24	440.93
POINT	11566303	368282.89	3753052.79	6.1	81.78	64	6.1	12.41	371.26
POINT	11566304	368301.2	3753007.82	6.1	35.89	45.7	3.4	26.909	664.54
POINT	11566305	368303.56	3753001.79	6.1	35.89	45.7	3.4	26.909	664.54

Attachment 3
RBEP Cumulative Impact Assessment

Redondo Beach Energy Project
Attachment 3 Table 1
Cumulative Modeling Parameters - Stack Parameters
October 2013

Point Sources

Facility	Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
RBEP	RBEP Stack 1	371060	3746515	4.42	42.7	463	15.1	5.49
	RBEP Stack 2	371096	3746520	4.42	42.7	463	15.1	5.49
	RBEP Stack 3	371132	3746525	4.42	42.7	463	15.1	5.49
Exxon	Exxon 80008901	376803	3746636	20.0	30.5	494	17.0	2.68
	Exxon 80008902	376791	3746758	19.8	36.6	627	4.99	2.21
	Exxon 80008903	376807	3746820	19.0	22.9	487	16.2	1.97
	Exxon 80008904	376797	3746840	19.0	27.4	558	27.7	3.35
	Exxon 80008905	376670	3746640	20.0	36.6	618	11.1	1.74
	Exxon 80008906	376691	3746640	20.0	49.7	394	9.59	1.71
	Exxon 80008907	376622	3746824	20.0	28.7	514	20.0	1.65
	Exxon 80008908	376614	3746824	20.0	28.7	514	20.0	1.65
	Exxon 80008909	376944	3746685	18.0	21.3	632	8.26	1.22
	Exxon 80008910	376944	3746672	18.0	19.8	604	6.51	1.51
	Exxon 80008911	376799	3746958	18.0	30.5	614	5.26	3.17
	Exxon 80008912	376798	3746878	19.0	36.3	591	5.47	1.91
	Exxon 80008913	376787	3746576	20.0	39.6	589	8.90	1.40
	Exxon 80008914	376787	3746546	20.0	39.6	545	8.87	1.40
	Exxon 80008915	376786	3746514	20.0	39.6	482	5.82	1.40
	Exxon 80008916	376786	3746487	20.7	39.2	579	5.30	1.98
	Exxon 80008917	376785	3746451	21.0	39.6	595	9.15	1.49
	Exxon 80008918	376785	3746421	21.0	39.6	595	10.5	1.49
	Exxon 80008919	376533	3746645	20.0	30.5	519	21.7	3.73
	Exxon 80008920	376427	3746791	20.0	45.7	443	9.50	1.62
	Exxon 80008921	376280	3746541	22.0	45.7	927	2.88	1.95
	Exxon 80008922	376476	3746524	21.0	45.7	660	8.46	2.29
	Exxon 80008923	376718	3746815	20.0	30.5	460	7.95	1.77
	Exxon 80008924	376730	3746815	20.0	30.5	473	8.17	1.77
	Exxon 80008925	378000	3746802	16.9	7.32	970	1.22	0.91
	Exxon 80008926	376747	3746635	20.0	16.8	532	7.40	2.26
	Exxon 80008927	376798	3746861	19.0	36.3	526	5.23	1.75
	Exxon 80008928	376193	3746282	23.0	24.4	751	7.44	0.99
	Exxon 80008929	376215	3746275	23.0	5.49	1,089	0.36	0.91
Chevron	Chevron 80003001	369663	3752778	31.6	42.7	581	8.86	2.38
	Chevron 80003002	369187	3753481	35.1	22.3	417	1.90	2.82
	Chevron 80003003	369655	3753546	31.1	25.0	664	2.01	1.42
	Chevron 80003004	369655	3753538	31.1	25.0	633	1.06	1.51
	Chevron 80003005	370173	3752653	32.6	30.5	866	2.22	1.32
	Chevron 80003006	369507	3753620	31.1	47.2	641	8.22	3.05
	Chevron 80003007	369766	3753670	33.8	36.6	535	0.71	1.45
	Chevron 80003008	369510	3753358	31.7	30.5	483	6.74	2.90
	Chevron 80003009	369493	3753435	31.9	36.3	599	3.88	1.36
	Chevron 80003010	369756	3753596	32.0	52.1	469	1.34	2.21
	Chevron 80003011	369760	3753622	31.5	33.5	509	2.50	1.33
	Chevron 80003012	368993	3753605	35.9	35.7	516	2.72	1.55
	Chevron 80003013	368893	3753658	36.9	58.5	553	1.38	3.96

Redondo Beach Energy Project
Attachment 3 Table 1
Cumulative Modeling Parameters - Stack Parameters
October 2013

Point Sources

Facility	Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Chevron	Chevron 80003014	369835	3753078	31.4	39.6	745	4.08	1.22
	Chevron 80003015	370224	3752674	32.4	56.4	648	8.15	2.59
	Chevron 80003016	370072	3752651	37.3	31.1	746	0.85	1.33
	Chevron 80003017	370055	3752651	38.7	31.1	715	1.34	1.28
	Chevron 80003018	369641	3752870	29.6	44.5	551	14.1	2.15
	Chevron 80003019	370328	3752493	41.7	36.6	616	2.55	1.91
	Chevron 80003020	370328	3752467	43.4	36.6	622	2.72	1.91
	Chevron 80003021	370328	3752550	35.9	39.3	561	1.64	1.91
	Chevron 80003022	370328	3752522	39.0	39.3	561	1.29	1.91
	Chevron 80003023	368400	3753385	37.0	11.0	331	8.71	1.04
	Chevron 80003024	370242	3752622	32.0	54.9	583	2.69	3.93
	Chevron 80003025	370244	3752643	31.9	54.9	533	2.06	3.10
	Chevron 80003026	369335	3753600	27.6	4.57	1,172	0.36	0.91
	Chevron 80003027	368724	3752718	40.6	4.57	1,150	0.58	0.84
	Chevron 80003028	370542	3753132	30.8	4.57	1,070	1.01	0.34
	Chevron 80003029	369421	3753392	30.8	10.7	1,060	0.89	0.81
	Chevron 80003030	369902	3752366	29.6	4.27	778	23.8	0.10
	Chevron 80003031	369220	3753437	35.1	2.13	711	177	0.10
	Chevron 80003032	369515	3753144	35.0	45.7	550	2.60	1.80
	Chevron 80003033	369543	3753144	34.0	45.7	550	2.10	1.80
	Chevron 80003034	369724	3753182	32.0	46.0	553	1.60	2.50
	Chevron 80003035	368058	3754068	11.2	91.4	735	8.25	9.14
	Chevron 80003036	368080	3753961	1.22	101	735	8.25	7.12
Scattergood	Scattergood 80007501	368058	3754068	10.4	91.4	735	8.25	9.14
	Scattergood 80007502	368054	3754130	11.3	64.9	366	19.5	5.79
	Scattergood 80007503	368145	3754122	31.7	30.5	661	28.8	4.11
	Scattergood 80007504	368194	3754004	31.7	30.5	661	28.8	4.11
El Segundo	ESP 11566301	368192	3753220	6.10	64.0	441	14.2	6.10
	ESP 11566302	368224	3753149	6.10	64.0	441	14.2	6.10
	ESP 11566303	368283	3753053	6.10	64.0	371	12.4	6.10
	ESP 11566304	368301	3753008	6.10	45.7	665	26.9	3.40
	ESP 11566305	368304	3753002	6.10	45.7	665	26.9	3.40

Volume Sources

Facility	Source ID	Base Elevation (m)	Stack Height (m)	Initial Horizontal Dimension (m)	Initial Vertical Dimension (m)
Chevron	Chevron 80003037	39.3	2.13	28.0	0.93

Redondo Beach Energy Project
Attachment 3 Table 2
Cumulative Modeling Parameters - Emission Rates
October2013

Facility	Source ID	1-hr NO_2 (g/s)	1-hr NO_2 (lb/hr)
RBEP	Stack 1	3.21	25.5
	Stack 2	3.21	25.5
	Stack 3	3.21	25.5
Exxon	Exxon 80008901	0.003	0.020
	Exxon 80008902	0.003	0.020
	Exxon 80008903	2.20	17.4
	Exxon 80008904	6.18	49.0
	Exxon 80008905	0.090	0.71
	Exxon 80008906	0.056	0.45
	Exxon 80008907	2.85	22.6
	Exxon 80008908	2.85	22.6
	Exxon 80008909	0.028	0.22
	Exxon 80008910	0.028	0.22
	Exxon 80008911	0.001	0.010
	Exxon 80008912	2.90	23.0
	Exxon 80008913	0.54	4.30
	Exxon 80008914	0.46	3.67
	Exxon 80008915	0.68	5.40
	Exxon 80008916	0.52	4.16
	Exxon 80008917	0.028	0.22
	Exxon 80008918	0.028	0.22
	Exxon 80008919	4.19	33.2
	Exxon 80008920	0.095	0.75
	Exxon 80008921	0.016	0.13
	Exxon 80008922	0.028	0.22
	Exxon 80008923	0.028	0.22
	Exxon 80008924	0.028	0.22
	Exxon 80008925	0.076	0.60
	Exxon 80008926	1.99	15.8
	Exxon 80008927	2.77	22.0
	Exxon 80008928	0.028	0.22
	Exxon 80008929	0.028	0.22
Chevron	Chevron 80003001	0.49	3.86
	Chevron 80003002	0.69	5.50
	Chevron 80003003	0.78	6.16
	Chevron 80003004	0.24	1.93
	Chevron 80003005	0.49	3.86
	Chevron 80003006	11.4	90.1
	Chevron 80003007	0.15	1.23
	Chevron 80003008	0.76	6.02
	Chevron 80003009	0.36	2.82
	Chevron 80003010	1.80	14.3
	Chevron 80003011	0.78	6.17
	Chevron 80003012	0.24	1.93
	Chevron 80003013	0.24	1.94
	Chevron 80003014	0.21	1.69
	Chevron 80003015	0.44	3.53
	Chevron 80003016	0.24	1.93

Redondo Beach Energy Project
Attachment 3 Table 2
Cumulative Modeling Parameters - Emission Rates
October2013

Facility	Source ID	1-hr NO_2 (g/s)	1-hr NO_2 (lb/hr)
Chevron	Chevron 80003017	0.19	1.53
	Chevron 80003018	0.73	5.78
	Chevron 80003019	1.40	11.1
	Chevron 80003020	1.54	12.2
	Chevron 80003021	0.84	6.64
	Chevron 80003022	0.81	6.47
	Chevron 80003023	0.24	1.93
	Chevron 80003024	1.84	14.6
	Chevron 80003025	0.75	5.92
	Chevron 80003026	0.031	0.25
	Chevron 80003027	0.031	0.25
	Chevron 80003028	0.004	0.030
	Chevron 80003029	0.19	1.47
	Chevron 80003030	5.52	43.8
	Chevron 80003031	0.27	2.11
	Chevron 80003032	0.49	3.86
	Chevron 80003033	0.49	3.86
	Chevron 80003034	0.49	3.86
	Chevron 80003035	5.37	42.6
	Chevron 80003036	5.19	41.2
	Chevron 80003037	2.00	15.9
Scattergood	Scattergood 80007501	0.87	6.89
	Scattergood 80007502	3.47	27.5
	Scattergood 80007503	2.26	17.9
	Scattergood 80007504	2.26	17.9
El Segundo	ESP 11566301	11.5	91.1
	ESP 11566302	11.5	91.1
	ESP 11566303	10.3	81.8
	ESP 11566304	4.52	35.9
	ESP 11566305	4.52	35.9

Redondo Beach Energy Project
Attachment 3 Table 3
Cumulative Modeling Results Summary
October 2013

Source Group	Year	1-hr NO_2 Concentrations
ALL	2005	146
	2006	139
	2007	138
	2008	142
	2009	141
RBEP	2005	26.3
	2006	27.6
	2007	25.8
	2008	32.1
	2009	21.4
Exxon	2005	13.4
	2006	13.5
	2007	13.5
	2008	13.5
	2009	13.5
Chevron	2005	42.5
	2006	41.1
	2007	43.2
	2008	42.2
	2009	43.1
Scattergood	2005	1.05
	2006	1.01
	2007	0.98
	2008	1.00
	2009	0.99
El Segundo	2005	7.98
	2006	7.98
	2007	7.98
	2008	7.90
	2009	7.93

Total predicted concentration for the Federal 1-hour NO_2 standard is the maximum modeled concentration paired with the three-year average of 98th percentile seasonal hourly background concentrations, as provided by the SCAQMD.

Attachment 4
RBEP Class II Visibility Assessment

AES RBEP Class II Visibility Assessment

PREPARED FOR: AES Southland Development, LLC

COPY TO: CH2M HILL Project Folder

PREPARED BY: John Frohning/CH2M HILL

DATE: October 25, 2013

AES Redondo Beach, LLC (AES) owns and operates the Redondo Beach Generating Station located in Redondo Beach, California and is proposing to replace the existing power boilers with more efficient natural gas-fired combustion turbines in a combined cycle configuration. The proposed Redondo Beach Energy Project (RBEP) would be one of the 28 major source categories defined in Title 40 of the Code of Federal Regulations (CFR), Section 51.166, and the modification would trigger Prevention of Significant Deterioration (PSD) permitting requirements.

The South Coast Air Quality Management District (SCAQMD) is the responsible agency with regards to the permitting of RBEP. In addition to the information needed to satisfy the requirements for a complete PSD permit application, the SCAQMD has requested an analysis of the project's impacts on visibility for nearby Class II areas. This memorandum outlines the RBEP visibility analysis approach and results at the Class II areas of concern identified through consultation with SCAQMD.

Class II Areas of Concern

A survey of California State Parks and Wilderness areas designated as Class II areas was conducted within 50 kilometers (km) of RBEP. The results of this survey were presented to the SCAQMD staff for review and approval. The Class II areas identified and approved by the SCAQAMD for inclusion in the Class II visibility analysis are presented in Table 1 below and shown on Figure 1.

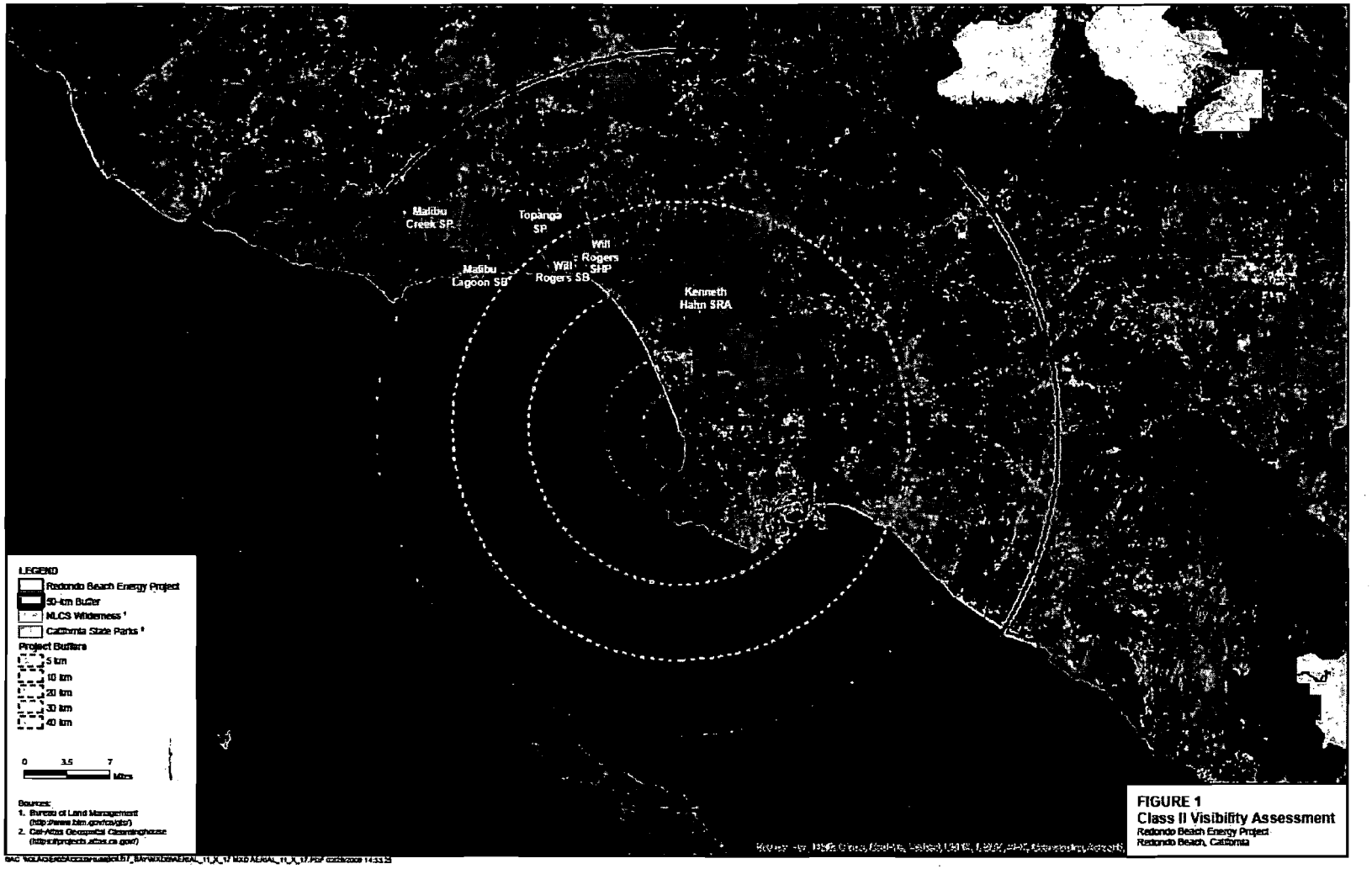
TABLE 1

Class II Areas within 50 km of RBEP

Class II Area	Nearest Distance	Furthest Distance
Kenneth Hahn State Park	16.9 km	18.9 km
Will Rogers State Park [a]	24.6 km	34.7 km
Topanga State Park [a]	24.6 km	34.7 km
Malibu Creek State Park [b]	33.2 km	43.6 km
Malibu Lagoon State Park [b]	33.2 km	43.6 km

[a] Assumed Will Rogers State Park and Topanga State Park cover the same area since they are directly adjacent to one another.
[b] Assumed Malibu Creek State Park and Malibu Lagoon State Park cover the same area since they are directly adjacent to one another.

FIGURE 1
Class II Areas within 50 km of RBEP



Visibility Assessment Approach

No specific requirements or criteria exist in the PSD regulations for assessing Class II visibility impacts. Therefore, the conservative approach used to assess visibility impacts of Class I areas within 50 km of a PSD project site was used.

The *Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report – Revised (2010)* (Federal Land Managers [FLM], 2010) guidance document for addressing Class I areas initially recommends the use of the U.S Environmental Protection Agency's (EPA) VISCREEN screening model to assess the change in color difference (ΔE) and contrast between the facility's plume and the viewing background. The VISCREEN screening model can use a tiered approach to determine if the facility's emissions would impact visibility at a nearby Class I area. If the VISCREEN Tier I and Tier II screening assessment demonstrate that visibility could be impacted at the Class I area, then the PLUVUE II model is recommended for a Tier III assessment. The PLUVUE II model differs from the VISCREEN screening model as VISCREEN uses a single representative worst-case meteorological condition to determine the facility's potential impacts on visibility while PLUVUE II considers a realistic array of all conditions that would be expected to occur in a typical year in the region. Procedures outlined in the *Workbook for Plume Visual Impact Screening and Analysis* (EPA, 1992) were followed to conduct a visibility assessment with VISCREEN at the nearby Class II areas.

The VISCREEN screening model was developed to present a visual effect evaluation of emissions from a source as observed from a given vantage point on either a sky or terrain background. Emissions input into the model are assumed to travel along an infinitely long, straight line toward the specified area of concern. As mentioned above, the VISCREEN screening model allows for the use of a tiered approach to assess a proposed source's impacts on visibility. A Tier I assessment utilizes conservative assumptions for both plume characteristics and dispersion conditions to determine if the plume would have an impact on visibility. If a Tier I assessment exceeds the FLAG guidance levels of concern for Class I areas of 2.0 for ΔE and 0.05 for contrast, then a Tier II assessment would be conducted. A Tier II assessment provides a more realistic representation of the possible worst-case meteorology and plume transport for a specific area to be analyzed.

Background visual ranges for the Class II areas presented in Table 1 were selected from the Interagency Monitoring of Protected Visual Environments (IMPROVE) annual average background visual range map. These data are provided on the IMPROVE website[1]. The average of the annual upper and lower bounds of the background visual range for the identified Class II areas was used for the analysis.

For RBEP, if a VISCREEN Tier I assessment exceeded the conservative criteria for Class I areas for either ΔE or contrast, a Tier II assessment utilized the Los Angeles International Airport AERMET meteorological dataset, which was provided by SCAQMD staff for the PSD modeling analysis for years 2005 through 2009, to determine representative worst-case single combinations of wind speed, wind direction, and atmospheric stability for each Class II area above the screening criteria. The 5-years of Los Angeles International Airport meteorological data were pre-processed with the EPA Meteorological Processor for Regulatory Modeling Applications (MPRM, Version 99349) for the Industrial Source Complex (ISC) modeling system. These data, pre-processed with MPRM, contain the required parameters of wind speed, wind direction, and stability class to create the joint frequency distributions[2]. These meteorological data would be considered representative for creating the joint frequency tables for determining the conservative representative worst-case single wind speed and stability class required for a Class I area VISCREEN assessment.

The meteorological data processing utilized the SCAQMD-provided AERMET data for wind speed, wind direction, temperature, and cloud cover. The ceiling height data were from the raw integrated surface hourly (ISH) format from the Los Angeles International Airport National Weather Service (NWS) station. The meteorological data processed with MPRM would be representative of the Class II area VISCREEN assessment. These parameters are

[1] http://www2.nature.nps.gov/air/monitoring/vismonresults.cfm. Accessed June 15, 2013.

[2] Meteorological data processed for ISC is preferred to create the joint frequency distribution tables for a Tier II VISCREEN assessment since the data contain Pasquill-Gifford Stability Classes. Meteorological data pre-processed for AERMOD do not contain the Pasquill-Gifford stability parameters.

required to create the corresponding hourly Pasquill-Gifford stability classes (EPA, 1996). The meteorological data joint frequency distribution of these parameters for each Class II area requiring a Tier II assessment is provided in Attachment A.

Since the annual average background visual ranges for each Class II area was used, the annual average RBEP emissions in tons per year (tpy) were used for oxides of nitrogen (NOx) and total particulate matter (PM). The assessment conservatively assumes only the project increases in emissions from RBEP would be modeled and would not consider any contemporaneous decreases of these pollutants from removal of the existing Redondo Beach Generating Station Units 5, 6, 7, and 8 boilers. The RBEP potential to emit are 121.5 tpy of NOx and 49.7 tpy of PM.

Visibility Assessment Results

Following the approach above, Table 2 summarizes the VISCREEN Tier I modeled results for each Class II area shown in Table 1. The maximum modeled values for ΔE and contrast are presented for inside the area analyzed, regardless of the VISCREEN modeled lines of sight for the observer.

TABLE 2

Tier I VISCREEN Results

Class II Area	Minimum Distance	Maximum Distance	Variable	Sky	Terrain	Criteria
Kenneth Hahn State Park	16.9	18.9	Delta E	1.011	**2.79**	2.0
			Contrast	0.01	0.018	|0.05|
Will Rogers State Park and Topanga State Park	24.6	34.7	Delta E	1.247	1.772	2.0
			Contrast	-0.013	0.013	|0.05|
Malibu Creek State Park and Malibu Lagoon State Park	33.2	43.6	Delta E	0.911	1.208	2.0
			Contrast	0.009	0.011	|0.05|

Bold Values exceed the Class I significant impact criteria.

As shown in Table 2, the results of the Tier I assessment demonstrate that the proposed RBEP would be below the significance criteria for both ΔE and contrast at Will Rogers State Park, Topanga State Park, Malibu Creek State Park, and Malibu Lagoon State Park. The Tier I assessment exceeded the criteria for ΔE at Kenneth Hahn State Park. As a result, a Tier II assessment was performed for the Kenneth Hahn State Park. The Tier II VISCREEN results are summarized in Table 3.

TABLE 3

Tier II RBEP VISCREEN Results for Kenneth Hahn State Park

Class II Area	Minimum Distance	Maximum Distance	Wind Speed [a]	Stability [a]	Variable	Sky	Terrain	Criteria
Kenneth Hahn State Park	16.9	18.9	3	E	Delta E	0.387	0.795	2.0
					Contrast	0.004	0.004	|0.05|

[a] The joint frequency distribution table used to calculate the wind speed and stability for the Tier II assessment is presented in Attachment A.

The VISCREEN Tier II assessment for Kenneth Hahn State Park did not exceed the criteria for ΔE or contrast. As the modeled results are below the conservative Class I area criteria for both ΔE and contrast, RBEP would not adversely affect visibility at nearby Class II Areas.

References

U.S. Environmental Protection Agency (EPA). 1992. *Workbook for Plume Visual Impact Screening and Analysis* (EPA-454/R-92-023). October.

U.S. Environmental Protection Agency (EPA). 1996. *Meteorological Processor for Regulatory Models (MPRM) User's Guide*. Office of Air Quality Planning and Standards. Research Triangle Park. EPA-454/B-96-002. August.

Federal Land Managers (FLM). 2010. *Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report – Revised (2010), Natural Resource Report NPS/NRPC/NRR-2010/232*. October.

South Coast Air Quality Management District (AQMD). 2013. *AQMD Meteorological Data*. http://www.aqmd.gov/smog/metdata/ISCST3_Table1.html. Accessed June 17.

Interagency Monitoring of Protected Visual Environments (IMPROVE). 2013. *Visibility Monitoring Data, Results*. http://www2.nature.nps.gov/air/monitoring/vismonresults.cfm. Accessed June 15.

Attachment A

Kenneth Hahn State Park Joint Frequency Distribution for Tier II VISCREEN Assessment

Table A-1
Kenneth Hahn Joint Frequency Distribution

Dispersion Condition		σz·σy·u [a]	Transport Time (hours)	Count (hours) [b]	Frequency	Cumulative Frequency
Stability	Wind Speed					
F	1	2.46E+04	4.7	109	0.0025	0.0025
F	2	4.92E+04	2.3	162	0.0037	0.0062
E	1	6.55E+04	4.7	24	0.0005	0.0067
F	3	7.39E+04	1.6	50	0.0011	0.0079
F	4	9.86E+04	0.9	2	0.0000	0.0079
E	2	1.31E+05	2.3	52	0.0012	0.0091
D	1	1.57E+05	4.7	30	0.0007	0.0098
E	3	1.97E+05	1.6	33	0.0008	0.0105
E	4	2.62E+05	1.2	20	0.0005	0.0110
D	2	3.14E+05	2.3	49	0.0011	0.0121
E	5	3.28E+05	0.9	4	0.0001	0.0122
D	3	4.72E+05	1.6	41	0.0009	0.0131
D	4	6.29E+05	1.2	38	0.0009	0.0140

[a] σz·σy·u is based on a distance of 16.9 km.

[b] Count is for hours during which winds blow toward the sector between 6 and 16 degrees from true north.

The highlighted row represents the top 1 percent of the data; the corresponding wind speed and stability were used for the Tier II analysis.