DOCKETED

Docket Number:	12-AFC-03
Project Title:	Redondo Beach Energy Project
TN #:	201584
Document Title:	Data Response Set 2 67-70
Description:	N/A
Filer:	Sarah Madams
Organization:	CH2M HILL/ S. Madams
Submitter Role:	Applicant Consultant
Submission Date:	1/21/2014 4:34:56 PM
Docketed Date:	1/21/2014

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January 21, 2014

Ms. Patricia Kelly
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Redondo Beach Energy Project (12-AFC-03)
Data Response Set 2 – Responses to CEC Staff Data Requests 67-70

Dear Ms. Kelly:

Attached please find the Redondo Beach Energy Project's Data Response Set 2A, including responses to Data Requests 67-70. This Data Response Set was prepared in response to California Energy Commission Staff Data Requests 67-70 for the Application for Certification for the Redondo Beach Energy Project (12-AFC-03) dated December 20, 2013.

Also provided is five electronic copies of Attachment DR67-1 on CD-ROM. Additional electronic copies are available upon request.If you have any questions about this matter, please contact me at (916) 286-0249 or Mr. Jerry Salamy at (916) 286-0207.

Sincerely,

CH2M HILL

Sarah Madams
AFC Project Manager

Attachment
cc: S. O'Kane, AES
G. Wheatland, ESH
J. Salamy, CH2M HILL

Redondo Beach Energy Project

(12-AFC-03)

Data Responses, Set 2

(Responses to Data Requests 67–70)

Submitted to

California Energy Commission

Prepared by

AES Southland Development, LLC

With Assistance from

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January 21, 2014

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Introduction

Attached are AES Southland Development, LLC's (AES or the Applicant) responses to the California Energy Commission (CEC) Data Request, Set 2 regarding the Redondo Beach Energy Project (RBEP) (12-AFC-03) Application for Certification (AFC). This submittal included updated responses to the following data requests: 67–70.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Data Request numbers.

New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 68 would be numbered Table DR68-1. The first figure used in response to Data Request 70 would be Figure DR70-1, and so on. Figures or tables from the RBEP AFC that have been revised have "R1" following the original number, indicating revision 1.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

Air Quality (67–68)

COMMISSIONING IMPACTS: BACKGROUND

In Data Response Set 1A (TN: 201383), response to data request number 10, the applicant provided the expected annual impacts associated with commissioning of the three combustion turbine generators (CTGs). It is apparent from the proposed project schedule (as stated in AFC page 5.1-1) that demolition of units 5-8 and auxiliary boiler 17, and ongoing construction activities associated with Redondo Beach Energy Project (RBEP) construction (e.g. new control building and relocation of the Wayland Whaling Wall) would occur simultaneously to commissioning of the CTGs (months 43-48). Staff needs to evaluate potential worst case impacts associated with all phases of the project, including the potential emissions overlap from commissioning of the CTGs, demolition of units 5-8 and 17, and construction activities associated with RBEP construction.

DATA REQUEST

67. Please provide air quality modeling impacts for all criteria pollutants and averaging periods during worst-case conditions, which appear to include: (1) overlap of commissioning of the CTGs, (2) demolition of units 5-8 and 17, and (3) construction activities associated with RBEP construction.

Response: A modeling analysis was conducted using the worst-case RBEP commissioning scenario for each short-term pollutant and averaging time and the worst-case combined RBEP commissioning and operating scenarios for each annual pollutant and averaging time, as presented in Tables 1, 3, and 4 of Attachment DR 67-1, along with the worst-case short-term and annual emissions associated with the demolition of Redondo Beach Generating Station (RBGS) Units 5-8 and 17 and construction of control/administration and water treatment buildings and the installation of the sound wall from month 43 of the construction period forward, as shown in Tables 2 and 3 of Attachment DR 67-1. Meteorological data and model settings were the same as outlined in AFC Section 5.1.6.3, with the exceptions outlined in the response to Data Request 8, which was submitted to the CEC on December 6, 2013 (TN: 201383). Note, however, that the modeling hour limitation described in the response to Data Request 8 was not necessary to demonstrate compliance with the ambient air quality standards (AAQS) for this data response.

Table DR 67-1 presents a comparison of the maximum modeled concentrations to the AAQS. As shown, the maximum sulfur dioxide (SO_2), carbon monoxide (CO), and annual nitrogen dioxide (NO_2) modeled concentrations combined with the background concentrations do not exceed the AAQS, but the maximum 1-hour NO_2 modeled concentration combined with the background concentration will be above the AAQS. This result, however, conservatively assumes that all three turbines would be commissioned simultaneously at the highest turbine oxides of nitrogen (NO_X) emission rate of 110 pounds per hour (lb/hr). Based on the commissioning impact results (see Table 5 of Attachment DR 67-1), commissioning three turbines simultaneously results in a maximum commissioning-only 1-hour NO_2 impact of 175 micrograms per cubic meter ($\mu g/m^3$). If two turbines are commissioned simultaneously, the resulting 1-hour NO_2 impact would be 124[1] $\mu g/m^3$, which, when combined with the background concentration of 169 $\mu g/m^3$, is below the 1-hour NO_2 California Ambient Air Quality Standard (CAAQS). The Applicant expects the South Coast Air Quality Management District (SCAQMD) to include a condition limiting RBEP's steam blow commissioning activities to no more than two turbines at a time. Therefore, commissioning and operation of the proposed RBEP

[1] The NO_2 impact for two turbines is based on a ratio of the maximum commissioning-only NO_2 impact of 175 $\mu g/m^3$ by the NO_2 emission rate for two turbines undergoing commissioning (220 lb NO_2/hr) divided by the NO_2 emission rate for three turbines undergoing commissioning (330 lb NO_2/hr), combined with the contribution of demolition and construction impacts to the maximum impact (182 $\mu g/m^3$ minus 175 $\mu g/m^3$).

combined with demolition of RBGS Units 5-8 and 17 and construction of ancillary facilities/structures will not cause or contribute to the violation of a standard, and the NO_2, SO_2, and CO impacts will be less than significant.

The particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) background concentrations exceed the CAAQS without adding the modeled concentrations. Similarly, the particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$) background concentrations exceed both the state and federal AAQS without adding the modeled concentrations. As a result, when the PM_{10} and $PM_{2.5}$ modeled concentrations resulting from demolition of RBGS Units 5–8 and 17 and construction of ancillary facilities/structures with the concurrent commissioning and operation of the proposed RBEP are added to existing PM_{10} and $PM_{2.5}$ background concentrations, the total concentration will be greater than the AAQS. The modeling analysis demonstrates that fugitive dust from demolition and construction activities is a significant contributor to the predicted concentrations, and the maximum PM_{10} and $PM_{2.5}$ concentrations will remain near the property boundary.

A summary of the dispersion modeling input files for commissioning and operation of the proposed RBEP with demolition of RBGS Units 5-8 and 17 and construction of ancillary facilities/structures, as well as the complete modeling results, are presented in Attachment DR 67-1. The AERMOD input and output files have been separately prepared and are included with this submission on compact disc.

TABLE DR 67-1

Maximum Modeled Impacts from RBEP Commissioning and Operation with Demolition of RBGS Units 5-8 and 17 and Construction of Ancillary Facilities/Structures 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 ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)
NO_2 [b]	1-hour	182	169	351	339	—
	Annual	4.43	29.9	34.3	57	100
SO_2	1-hour	6.60	67.8	74.4	655	—
	3-hour	3.95	38.7	42.7	—	1,300
	24-hour	1.12	15.7	16.8	105	365
CO	1-hour	6,342	4,581	10,923	23,000	40,000
	8-hour	2,794	2,863	5,657	10,000	10,000
PM_{10}	24-hour	19.9	52.0	71.9	50	150
	Annual	7.00	25.6	32.6	20	—
$PM_{2.5}$	24-hour [c]	3.28	35.3	38.6	—	35
	Annual	0.96	15.5	16.5	12	12

[a] Background concentrations were 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 (EPA, 2011) and 0.75 (EPA, 2005), respectively.

[c] Total predicted concentration for the federal 24-hour $PM_{2.5}$ standard is the maximum modeled concentration combined with the 3-year average of 98th percentile background concentrations.

In addition to evaluating the above scenarios, the impacts associated with RBEP construction alone were evaluated based on the revised construction emission estimates submitted to the CEC on December 6, 2013 (TN: 201383). Construction impacts were evaluated using the worst-case RBEP construction emissions. Note that the maximum emissions of NO_2, $PM_{2.5}$, and 24-hour PM_{10} occur during construction of the power block while the maximum emissions of CO, SO_2, and annual PM_{10} occur during the overlapping period of power block construction and demolition of existing RBGS Units 5 and 6 and Units 7 and 8. Maximum emissions for each pollutant and averaging time are presented in Table 2 of Attachment DR 67-2. Meteorological data and model settings were the same as outlined in AFC Section 5.1.6.3, with the exceptions outlined in the response to Data Request 8. Again, the modeling hour limitation described in response to Data Request 8 was not necessary to demonstrate compliance with the AAQS.

Table 5.1-27R, which is a revision to AFC Table 5.1-27, presents a comparison of the maximum modeled concentrations to the AAQS. The results between the AFC Table 5.1-27 and Table 5.1-27R are a result of updates to the CalEEMod modeling program's emission factors and modified modeling techniques. As shown, the maximum NO_2, SO_2, and CO modeled concentrations combined with the background concentrations do not exceed the AAQS. Therefore, construction of the proposed RBEP will not cause or contribute to the violation of a standard, and the NO_2, SO_2, and CO impacts will be less than significant.

The PM_{10} background concentrations exceed the CAAQS without adding the modeled concentrations. Similarly, the $PM_{2.5}$ background concentrations exceed both the state and federal AAQS without adding the modeled concentrations. As a result, when the PM_{10} and $PM_{2.5}$ modeled concentrations resulting from construction of the proposed RBEP are added to existing PM_{10} and $PM_{2.5}$ background concentrations, the total concentration will be greater than the AAQS. The modeling analysis demonstrates that fugitive dust is a significant contributor to the predicted concentrations, and the maximum PM_{10} and $PM_{2.5}$ concentrations will remain near the property boundary.

A summary of the dispersion modeling input files for construction of the proposed RBEP, as well as the complete modeling results, are presented in Attachment DR 67-2. The AERMOD input and output files have been separately prepared and are included with this submission on compact disc.

TABLE 5.1-27R
Maximum Modeled Impacts from RBEP Construction 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 ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)
NO_2 [b]	1-hour	95.9	169	265	339	—
	Federal 1-hour [c]	-	—	180	—	188
	Annual	6.69	29.9	36.6	57	100
SO_2	1-hour	0.11	67.8	67.9	655	—
	Federal 1-hour [d]	0.11	37.5	37.6	—	196
	3-hour	0.11	38.7	38.8	—	1,300
	24-hour	0.025	15.7	15.7	105	365
CO	1-hour	47.7	4,581	4,629	23,000	40,000
	8-hour	37.2	2,863	2,900	10,000	10,000
PM_{10}	24-hour	22.4	52.0	74.4	50	150
	Annual	6.97	25.6	32.6	20	—
$PM_{2.5}$	24-hour [e]	6.12	35.3	41.4	—	35
	Annual	1.73	15.5	17.2	12	12

[a] Background concentrations were 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 (EPA, 2011) and 0.75 (EPA, 2005), respectively.
[c] Total predicted concentration for the federal 1-hour NO_2 standard is the high 8th high pairing of modeled concentration with the 3-year average of 98th percentile seasonal, hourly background concentration, as provided by the SCAQMD.
[d] Total predicted concentration for the federal 1-hour SO_2 standard is the maximum modeled concentration combined with the 3-year average of 99th percentile background concentrations.
[e] Total predicted concentration for the federal 24-hour $PM_{2.5}$ standard is the maximum modeled concentration combined with the 3-year average of 98th percentile background concentrations.

References:

U.S. Environmental Protection Agency (EPA). 2005. *Guideline on Air Quality Models, 40 Code of Federal Regulations, Part 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*. March.

AIR COOLED CONDENSER: BACKGROUND

Staff plans to perform a plume velocity analysis for the gas turbines and air cooled condenser (ACC) for the Redondo Beach Energy Project (RBEP) necessary to evaluate any potential plume impacts on aircraft flying in the immediate vicinity of the project. The applicant provided operating parameters for the ACCs at Huntington Beach Energy Project (HBEP) in data responses DR87-1 and DR87-2. Staff considered using this data for the RBEP as the operating and exhaust parameters are expected to be similar for the ACCs at both sites. However, there are slight differences in the data provided for the two power blocks at the HBEP, so staff would like the applicant to provide/confirm exhaust parameters for the ACC at the RBEP.

DATA REQUEST

68. Please summarize the operating conditions for the ACC, including heat rejection, exhaust temperature, and exhaust velocity. Please provide values to complete the table, and additional data as necessary for staff to determine how the heat rejection load varies with ambient conditions and also determine at what conditions ACC cells may be shut down, and for staff to model thermal plume. The ambient conditions included in this table correspond to those in AFC Table 5.1B.2 for gas turbines, and are similar to the ambient cases in which ACC exhaust parameters were provided for HBEP (DR87-1 and DR87-2). The applicant can provide ACC exhaust parameters for other similar ambient conditions in place of the ambient conditions requested herein if desired.

    The ambient conditions included in this table correspond to those in AFC Table5.1B.2 for gas turbines.

Parameter	**Air Cooled Condenser**					
Number of Cells						
Cell Height						
Cell Diameter						
Ambient Temperature	33ºF		63.3ºF		106ºF	
Ambient Relative Humidity	93.80%		75.20%		9.60%	
Duct Firing	Yes	No	Yes	No	Yes	No
Number of Cells in Operation						
Heat Rejection (MW/hr)						
Exhaust Temperature (F)						
Exhaust Velocity (ft/s)						
Exhaust Flow Rate (lb/hr)						

Response: ACC operating conditions are provided in Table DR 68-1.

TABLE DR 68-1
ACC Operating Conditions

Parameter	**Air Cooled Condenser**		
Number of Cells	25		
Cell Height	83 feet from ground level		
Fan Diameter	30 ft		
Ambient Temperature	33ºF	63.3ºF	106ºF
Ambient Relative Humidity	93.80%	75.20%	9.60%
Duct Firing	No	No	No
Number of Cells in Operation	23	25	25
Evap Cooler	OFF	ON	ON
LPT Exhaust Mass Flow kpph	1103.8	1106.5	1122.1
LPT Exhaust Enthalpy BTU/lb	990	994.9	1055.4
Heat Rejection (MW)	~299	~295	~307
Exhaust Temperature (F)	~75	~106	~156
Exhaust Velocity (ft/s)	~12.6	~13.1	~12.5
Exhaust Flow Rate (lb/hr)	$\sim 100*10^6$	$\sim 99*10^6$	$\sim 85*10^6$

Attachment DR67-1
Supporting Documentation for the Commissioning, Operation, and Construction Impacts Analysis

Redondo Beach Energy Project
Attachment DR67-1 Table 1
Operational/Commissioning Modeling Parameters
January 2014

Point Sources

Pollutant	Scenario	Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
1-hour NO_2, CO, SO_2, 24-hour PM_{10}, 24-hour $PM_{2.5}$	5% Load Scenario	Stack 1 5% Load	371060	3746515	4.42	42.7	500	10.1	5.49
		Stack 2 5% Load	371096	3746520	4.42	42.7	500	10.1	5.49
		Stack 3 5% Load	371132	3746525	4.42	42.7	500	10.1	5.49
	40% Load Scenario	Stack 1 40% Load	371060	3746515	4.42	42.7	473	9.95	5.49
		Stack 2 40% Load	371096	3746520	4.42	42.7	473	9.95	5.49
		Stack 3 40% Load	371132	3746525	4.42	42.7	473	9.95	5.49
	50% Load Scenario	Stack 1 50% Load	371060	3746515	4.42	42.7	466	9.91	5.49
		Stack 2 50% Load	371096	3746520	4.42	42.7	466	9.91	5.49
		Stack 3 50% Load	371132	3746525	4.42	42.7	466	9.91	5.49
	100% Load Scenario	Stack 1 100% Load	371060	3746515	4.42	42.7	472	22.7	5.49
		Stack 2 100% Load	371096	3746520	4.42	42.7	472	22.7	5.49
		Stack 3 100% Load	371132	3746525	4.42	42.7	472	22.7	5.49
Annual NO_2, Annual PM_{10}, Annual $PM_{2.5}$	Annual	Stack 1	371060	3746515	4.42	42.7	462	16.0	5.49
		Stack 2	371096	3746520	4.42	42.7	462	16.0	5.49
		Stack 3	371132	3746525	4.42	42.7	462	16.0	5.49

Redondo Beach Energy Project
Attachment DR67-1 Table 2
Construction/Demolition Source Parameter
January 2014

Area Sources

Source ID	AREA (m^2)	Source Description	Base Elevation (m)	Release Height (m)	Number of Vertices	Initial Vert. Dimension (m)	Easting (X1) (m)	Northing (Y1) (m)	Easting (X2) (m)	Northing (Y2) (m)	Easting (X3) (m)	Northing (Y3) (m)	Easting (X4) (m)	Northing (Y4) (m)	Easting (X5) (m)	Northing (Y5) (m)	Easting (X6) (m)	Northing (Y6) (m)	Easting (X7) (m)	Northing (Y7) (m)	Easting (X8) (m)	Northing (Y8) (m)	Easting (X9) (m)	Northing (Y9) (m)
DEMOFUG	43,725.15	Demo 5-8 and 17	4.42	0.0	4	1.0	370990	3746179	370850	3746500	370965	3746550	371104	3746229										
CONSFUG	78,063.54	Construction	4.42	0.0	21	1.0	370931	3746690	370951	3746699	370994	3746691	371026	3746623	371125	3746665	371157	3746435	371173	3746321	371178	3746256	371179	3746127

Source ID	Easting (X10) (m)	Northing (Y10) (m)	Easting (X11) (m)	Northing (Y11) (m)	Easting (X12) (m)	Northing (Y12) (m)	Easting (X13) (m)	Northing (Y13) (m)	Easting (X14) (m)	Northing (Y14) (m)	Easting (X15) (m)	Northing (Y15) (m)	Easting (X16) (m)	Northing (Y16) (m)	Easting (X17) (m)	Northing (Y17) (m)	Easting (X18) (m)	Northing (Y18) (m)	Easting (X19) (m)	Northing (Y19) (m)	Easting (X20) (m)	Northing (Y20) (m)	Easting (X21) (m)	Northing (Y21) (m)
CONSFUG	371143	3746077	371119	3746123	371083	3746107	371005	3746161	370995	3746180	371107	3746228	371068	3746322	371060	3746421	371037	3746419	370935	3746642	370867	3746613	370845.29	3746651.98

Point Sources

Source ID	Easting (X1) (m)	Northing (Y1) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
DEM01	370996	3746196	4.4196	4.6	533.00	18.00	0.127
DEM02	370986	3746218	4.4196	4.6	533.00	18.00	0.127
DEM03	370976	3746241	4.4196	4.6	533.00	18.00	0.127
DEM04	370966	3746264	4.4196	4.6	533.00	18.00	0.127
DEM05	370956	3746287	4.4196	4.6	533.00	18.00	0.127
DEM06	370946	3746310	4.4196	4.6	533.00	18.00	0.127
DEM07	370936	3746333	4.4196	4.6	533.00	18.00	0.127
DEM08	370926	3746356	4.4196	4.6	533.00	18.00	0.127
DEM09	370916	3746379	4.4196	4.6	533.00	18.00	0.127
DEM10	370906	3746402	4.4196	4.6	533.00	18.00	0.127
DEM11	370896	3746425	4.4196	4.6	533.00	18.00	0.127
DEM12	370886	3746448	4.4196	4.6	533.00	18.00	0.127
DEM13	370876	3746471	4.4196	4.6	533.00	18.00	0.127
DEM14	370866	3746494	4.4196	4.6	533.00	18.00	0.127
DEM15	371019	3746206	4.4196	4.6	533.00	18.00	0.127
DEM16	371009	3746228	4.4196	4.6	533.00	18.00	0.127
DEM17	370999	3746251	4.4196	4.6	533.00	18.00	0.127
DEM18	370989	3746274	4.4196	4.6	533.00	18.00	0.127
DEM19	370979	3746297	4.4196	4.6	533.00	18.00	0.127
DEM20	370969	3746320	4.4196	4.6	533.00	18.00	0.127
DEM21	370959	3746343	4.4196	4.6	533.00	18.00	0.127
DEM22	370949	3746366	4.4196	4.6	533.00	18.00	0.127
DEM23	370939	3746389	4.4196	4.6	533.00	18.00	0.127
DEM24	370929	3746412	4.4196	4.6	533.00	18.00	0.127
DEM25	370919	3746435	4.4196	4.6	533.00	18.00	0.127
DEM26	370909	3746458	4.4196	4.6	533.00	18.00	0.127
DEM27	370899	3746481	4.4196	4.6	533.00	18.00	0.127
DEM28	370889	3746504	4.4196	4.6	533.00	18.00	0.127
DEM29	371042	3746216	4.4196	4.6	533.00	18.00	0.127
DEM30	371032	3746238	4.4196	4.6	533.00	18.00	0.127
DEM31	371022	3746261	4.4196	4.6	533.00	18.00	0.127
DEM32	371012	3746284	4.4196	4.6	533.00	18.00	0.127
DEM33	371002	3746307	4.4196	4.6	533.00	18.00	0.127
DEM34	370992	3746330	4.4196	4.6	533.00	18.00	0.127
DEM35	370982	3746353	4.4196	4.6	533.00	18.00	0.127
DEM36	370972	3746376	4.4196	4.6	533.00	18.00	0.127
DEM37	370962	3746399	4.4196	4.6	533.00	18.00	0.127
DEM38	370952	3746422	4.4196	4.6	533.00	18.00	0.127
DEM39	370942	3746445	4.4196	4.6	533.00	18.00	0.127
DEM40	370932	3746468	4.4196	4.6	533.00	18.00	0.127
DEM41	370922	3746491	4.4196	4.6	533.00	18.00	0.127
DEM42	370912	3746513	4.4196	4.6	533.00	18.00	0.127
DEM43	371065	3746225	4.4196	4.6	533.00	18.00	0.127
DEM44	371055	3746248	4.4196	4.6	533.00	18.00	0.127
DEM45	371045	3746271	4.4196	4.6	533.00	18.00	0.127
DEM46	371035	3746294	4.4196	4.6	533.00	18.00	0.127
DEM47	371025	3746317	4.4196	4.6	533.00	18.00	0.127
DEM48	371015	3746340	4.4196	4.6	533.00	18.00	0.127
DEM49	371005	3746363	4.4196	4.6	533.00	18.00	0.127
DEM50	370995	3746386	4.4196	4.6	533.00	18.00	0.127
DEM51	370985	3746409	4.4196	4.6	533.00	18.00	0.127
DEM52	370975	3746432	4.4196	4.6	533.00	18.00	0.127
DEM53	370965	3746455	4.4196	4.6	533.00	18.00	0.127
DEM54	370955	3746478	4.4196	4.6	533.00	18.00	0.127
DEM55	370945	3746501	4.4196	4.6	533.00	18.00	0.127
DEM56	370935	3746523	4.4196	4.6	533.00	18.00	0.127
DEM57	371088	3746235	4.4196	4.6	533.00	18.00	0.127
DEM58	371078	3746258	4.4196	4.6	533.00	18.00	0.127
DEM59	371068	3746281	4.4196	4.6	533.00	18.00	0.127
DEM60	371058	3746304	4.4196	4.6	533.00	18.00	0.127
DEM61	371048	3746327	4.4196	4.6	533.00	18.00	0.127
DEM62	371038	3746350	4.4196	4.6	533.00	18.00	0.127
DEM63	371028	3746373	4.4196	4.6	533.00	18.00	0.127
DEM64	371018	3746396	4.4196	4.6	533.00	18.00	0.127
DEM65	371008	3746419	4.4196	4.6	533.00	18.00	0.127
DEM66	370998	3746442	4.4196	4.6	533.00	18.00	0.127
DEM67	370988	3746465	4.4196	4.6	533.00	18.00	0.127
DEM68	370978	3746488	4.4196	4.6	533.00	18.00	0.127
DEM69	370968	3746511	4.4196	4.6	533.00	18.00	0.127
DEM70	370958	3746533	4.4196	4.6	533.00	18.00	0.127
CONS01	370968	3746667	4.4196	4.6	533.00	18.00	0.127
CONS02	370989	3746622	4.4196	4.6	533.00	18.00	0.127
CONS03	371010	3746577	4.4196	4.6	533.00	18.00	0.127
CONS04	371031	3746531	4.4196	4.6	533.00	18.00	0.127
CONS05	371052	3746486	4.4196	4.6	533.00	18.00	0.127
CONS06	371072	3746440	4.4196	4.6	533.00	18.00	0.127
CONS07	371080	3746619	4.4196	4.6	533.00	18.00	0.127
CONS08	371086	3746570	4.4196	4.6	533.00	18.00	0.127
CONS09	371091	3746520	4.4196	4.6	533.00	18.00	0.127
CONS10	371096	3746470	4.4196	4.6	533.00	18.00	0.127
CONS11	371102	3746420	4.4196	4.6	533.00	18.00	0.127
CONS12	371107	3746371	4.4196	4.6	533.00	18.00	0.127
CONS13	371113	3746321	4.4196	4.6	533.00	18.00	0.127
CONS14	371118	3746271	4.4196	4.6	533.00	18.00	0.127
CONS15	371124	3746222	4.4196	4.6	533.00	18.00	0.127
CONS16	371129	3746172	4.4196	4.6	533.00	18.00	0.127
CONS17	371076	3746173	4.4196	4.6	533.00	18.00	0.127

Redondo Beach Energy Project
Attachment DR67-1 Table 3
Modeling Parameters - Emission Rates
January 2014

Emission Rates for 1-hour, 3-hour, 8-hour, and 24-hour Modeling [a]

Source ID	1-hour NO_2		1-hour CO		8-hour CO		1-hour SO_2		3-hour SO_2		24-hour SO_2		24-hour PM_{10}		24-hour $PM_{2.5}$	
	(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)
Stack 1							0.25	1.96	0.25	1.96	0.25	1.96	0.57	4.50	0.57	4.50
Stack 2			See Attachment DR67-1 Table 4				0.25	1.96	0.25	1.96	0.25	1.96	0.57	4.50	0.57	4.50
Stack 3							0.25	1.96	0.25	1.96	0.25	1.96	0.57	4.50	0.57	4.50
DEMOEXH (01-70) [a]	0.76	6.01	0.45	3.60	0.45	3.60	1.02E-03	8.11E-03	1.02E-03	8.11E-03	4.26E-04	3.38E-03	0.015	0.12	0.014	0.11
DEMOFUG	-	-	-	-	-	-	-	-	-	-	-	-	0.074	0.59	0.008	0.060
CONSEXH (01-17) [a]	0.21	1.67	0.12	0.94	0.12	0.94	2.38E-04	1.89E-03	2.38E-04	1.89E-03	9.93E-05	7.88E-04	0.004	0.033	0.004	0.031
CONSFUG	-	-	-	-	-	-	-	-	-	-	-	-	0.013	0.11	0.001	0.011

Emission Rates for Annual Modeling [a]

Source ID	Annual NO_2		Annual PM_{10}		Annual $PM_{2.5}$	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)
Stack 1	1.28	10.1	0.52	4.12	0.52	4.12
Stack 2	1.28	10.1	0.52	4.12	0.52	4.12
Stack 3	1.28	10.1	0.52	4.12	0.52	4.12
DEMOEXH (01-70) [b]	0.24	1.89	0.011	0.087	0.010	0.081
DEMOFUG	-	-	0.063	0.50	0.006	0.051
CONSEXH (01-17) [b]	0.03	0.263	1.57E-03	1.25E-02	1.47E-03	1.17E-02
CONSFUG	-	-	5.03E-03	3.99E-02	5.03E-04	3.99E-03

[a] Short term emissions of SO_2 and PM from the turbines are the maximum emission rate without duct burner firing. Annual emissions from the turbines are from Attachment DR10-1, Table 1.

[b] Emission rates for exhaust point sources (DEMOEXH and CONSEXH) are presented as the sum total for all sources in the group.

Redondo Beach Energy Project
Attachment DR67-1 Table 4
Commissioning Source Parameters for AERMOD Input
January 2014

Point Sources

Scenario	Source ID	NO_2		CO	
		(g/s)	(lb/hr)	(g/s)	(lb/hr)
5% Load	Stack 1	6.11	48.5	215	1,709
	Stack 2	6.11	48.5	215	1,709
	Stack 3	6.11	48.5	215	1,709
40% Load	Stack 1	3.27	26.0	173	1,373
	Stack 2	3.27	26.0	173	1,373
	Stack 3	3.27	26.0	173	1,373
50% Load	Stack 1	13.82	110	399	3,169
	Stack 2	13.82	110	399	3,169
	Stack 3	13.82	110	399	3,169
100% Load	Stack 1	5.29	42.0	3.57	28.4
	Stack 2	5.29	42.0	3.57	28.4
	Stack 3	5.29	42.0	3.57	28.4

Redondo Beach Energy Project
Attachment DR67-1 Table 5
Modeling Results
January 2014

Source	Year	NO_2 (µg/m^3) [a]		CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
		1-hour	Annual	1-hour	8-hour	1-hour	3-hour	24-hour	24-hour	Annual	24-hour	Annual
ALL	2005	175	4.29	5,758	2,312	4.66	3.95	1.12	19.5	6.46	3.08	0.89
CONS		17.3	0.63	12.2	8.09	0.024	0.021	0.0042	2.95	6.20	0.41	0.65
DEMO		63.5	3.90	47.6	31.6	0.11	0.095	0.020	18.5	0.24	2.44	0.22
RBEP		159	0.44	5,746	2,213	3.55	2.96	0.67	1.53	0.24	1.53	0.24
ALL	2006	174	4.43	5,960	2,794	5.46	3.68	1.03	19.4	7.00	3.13	0.96
CONS		17.1	0.61	12.0	7.22	0.024	0.020	0.0038	3.00	6.74	0.41	0.70
DEMO		62.9	4.02	47.0	34.1	0.11	0.093	0.023	18.3	0.25	2.37	0.23
RBEP		165	0.39	5,953	2,644	3.68	2.59	0.63	1.44	0.21	1.44	0.21
ALL	2007	182	4.28	6,342	2,662	6.60	3.50	0.83	19.5	6.13	3.28	0.86
CONS		17.6	0.65	12.4	7.13	0.025	0.021	0.0044	3.23	5.87	0.45	0.62
DEMO		62.7	3.85	46.9	32.9	0.11	0.099	0.021	18.5	0.24	2.38	0.22
RBEP		175	0.40	6,337	2,647	3.92	2.68	0.58	1.34	0.21	1.34	0.21
ALL	2008	164	4.28	5,364	2,026	5.02	2.84	0.79	19.9	6.00	2.74	0.86
CONS		17.2	0.65	12.1	7.59	0.024	0.022	0.0040	2.83	5.74	0.41	0.60
DEMO		63.0	3.84	47.2	32.5	0.11	0.099	0.020	18.9	0.24	2.34	0.22
RBEP		143	0.41	5,176	1,937	3.20	1.87	0.43	0.98	0.22	0.98	0.22
ALL	2009	162	4.31	5,525	2,276	4.52	3.44	0.87	19.2	6.43	2.81	0.91
CONS		16.9	0.65	11.9	7.78	0.024	0.019	0.0040	3.00	6.16	0.42	0.65
DEMO		62.7	3.90	46.9	31.2	0.11	0.094	0.020	18.4	0.24	2.31	0.22
RBEP		153	0.42	5,519	2,268	3.41	2.59	0.55	1.27	0.23	1.27	0.23

[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.

Attachment DR67-2
Supporting Documentation for the Construction Impacts Analysis

Redondo Beach Energy Project
Attachment DR67-2 Table 1
Construction Source Parameters for AERMOD Input
January 2014

Area Sources

Source ID	Area (m^2)	Source Description	Base Elevation (m)	Release Height (m)	Number of Vertices	Initial Vert. Dimension (m)	Easting (X1) (m)	Northing (Y1) (m)	Easting (X2) (m)	Northing (Y2) (m)	Easting (X3) (m)	Northing (Y3) (m)	Easting (X4) (m)	Northing (Y4) (m)	Easting (X5) (m)	Northing (Y5) (m)	Easting (X6) (m)	Northing (Y6) (m)	Easting (X7) (m)	Northing (Y7) (m)	Easting (X8) (m)	Northing (Y8) (m)	Easting (X9) (m)	Northing (Y9) (m)
DEMOFUG	43,725.15	Demo 5-8 and 17	4.42	0.0	4	1.0	370990	3746179	370850	3746500	370965	3746550	371104	3746229										
CONSFUG	78,063.54	Construction	4.42	0.0	21	1.0	370931	3746690	370951	3746699	370994	3746691	371026	3746623	371125	3746665	371157	3746435	371173	3746321	371178	3746256	371179	3746127

Source ID	Easting (X10) (m)	Northing (Y10) (m)	Easting (X11) (m)	Northing (Y11) (m)	Easting (X12) (m)	Northing (Y12) (m)	Easting (X13) (m)	Northing (Y13) (m)	Easting (X14) (m)	Northing (Y14) (m)	Easting (X15) (m)	Northing (Y15) (m)	Easting (X16) (m)	Northing (Y16) (m)	Easting (X17) (m)	Northing (Y17) (m)	Easting (X18) (m)	Northing (Y18) (m)	Easting (X19) (m)	Northing (Y19) (m)	Easting (X20) (m)	Northing (Y20) (m)	Easting (X21) (m)	Northing (Y21) (m)
CONSFUG	371143	3746077	371119	3746123	371083	3746107	371005	3746161	370995	3746180	371107	3746228	371068	3746322	371060	3746421	371037	3746419	370935	3746642	370867	3746613	370845	3746654

Point Sources

Source ID	Easting (X1) (m)	Northing (Y1) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
DEM01	370996	3746196	4.42	4.60	533	18.0	0.127
DEM02	370986	3746218	4.42	4.60	533	18.0	0.127
DEM03	370976	3746241	4.42	4.60	533	18.0	0.127
DEM04	370966	3746264	4.42	4.60	533	18.0	0.127
DEM05	370956	3746287	4.42	4.60	533	18.0	0.127
DEM06	370946	3746310	4.42	4.60	533	18.0	0.127
DEM07	370936	3746333	4.42	4.60	533	18.0	0.127
DEM08	370926	3746356	4.42	4.60	533	18.0	0.127
DEM09	370916	3746379	4.42	4.60	533	18.0	0.127
DEM10	370906	3746402	4.42	4.60	533	18.0	0.127
DEM11	370896	3746425	4.42	4.60	533	18.0	0.127
DEM12	370886	3746448	4.42	4.60	533	18.0	0.127
DEM13	370876	3746471	4.42	4.60	533	18.0	0.127
DEM14	370866	3746494	4.42	4.60	533	18.0	0.127
DEM15	371019	3746206	4.42	4.60	533	18.0	0.127
DEM16	371009	3746228	4.42	4.60	533	18.0	0.127
DEM17	370999	3746251	4.42	4.60	533	18.0	0.127
DEM18	370989	3746274	4.42	4.60	533	18.0	0.127
DEM19	370979	3746297	4.42	4.60	533	18.0	0.127
DEM20	370969	3746320	4.42	4.60	533	18.0	0.127
DEM21	370959	3746343	4.42	4.60	533	18.0	0.127
DEM22	370949	3746366	4.42	4.60	533	18.0	0.127
DEM23	370939	3746389	4.42	4.60	533	18.0	0.127
DEM24	370929	3746412	4.42	4.60	533	18.0	0.127
DEM25	370919	3746435	4.42	4.60	533	18.0	0.127
DEM26	370909	3746458	4.42	4.60	533	18.0	0.127
DEM27	370899	3746481	4.42	4.60	533	18.0	0.127
DEM28	370889	3746504	4.42	4.60	533	18.0	0.127
DEM29	371042	3746216	4.42	4.60	533	18.0	0.127
DEM30	371032	3746238	4.42	4.60	533	18.0	0.127
DEM31	371022	3746261	4.42	4.60	533	18.0	0.127
DEM32	371012	3746284	4.42	4.60	533	18.0	0.127
DEM33	371002	3746307	4.42	4.60	533	18.0	0.127
DEM34	370992	3746330	4.42	4.60	533	18.0	0.127
DEM35	370982	3746353	4.42	4.60	533	18.0	0.127
DEM36	370972	3746376	4.42	4.60	533	18.0	0.127
DEM37	370962	3746399	4.42	4.60	533	18.0	0.127
DEM38	370952	3746422	4.42	4.60	533	18.0	0.127
DEM39	370942	3746445	4.42	4.60	533	18.0	0.127
DEM40	370932	3746468	4.42	4.60	533	18.0	0.127
DEM41	370922	3746491	4.42	4.60	533	18.0	0.127
DEM42	370912	3746513	4.42	4.60	533	18.0	0.127
DEM43	371065	3746225	4.42	4.60	533	18.0	0.127
DEM44	371055	3746248	4.42	4.60	533	18.0	0.127
DEM45	371045	3746271	4.42	4.60	533	18.0	0.127
DEM46	371035	3746294	4.42	4.60	533	18.0	0.127
DEM47	371025	3746317	4.42	4.60	533	18.0	0.127
DEM48	371015	3746340	4.42	4.60	533	18.0	0.127
DEM49	371005	3746363	4.42	4.60	533	18.0	0.127
DEM50	370995	3746386	4.42	4.60	533	18.0	0.127
DEM51	370985	3746409	4.42	4.60	533	18.0	0.127
DEM52	370975	3746432	4.42	4.60	533	18.0	0.127
DEM53	370965	3746455	4.42	4.60	533	18.0	0.127
DEM54	370955	3746478	4.42	4.60	533	18.0	0.127
DEM55	370945	3746501	4.42	4.60	533	18.0	0.127
DEM56	370935	3746523	4.42	4.60	533	18.0	0.127
DEM57	371088	3746235	4.42	4.60	533	18.0	0.127
DEM58	371078	3746258	4.42	4.60	533	18.0	0.127
DEM59	371068	3746281	4.42	4.60	533	18.0	0.127
DEM60	371058	3746304	4.42	4.60	533	18.0	0.127
DEM61	371048	3746327	4.42	4.60	533	18.0	0.127
DEM62	371038	3746350	4.42	4.60	533	18.0	0.127
DEM63	371028	3746373	4.42	4.60	533	18.0	0.127
DEM64	371018	3746396	4.42	4.60	533	18.0	0.127
DEM65	371008	3746419	4.42	4.60	533	18.0	0.127
DEM66	370998	3746442	4.42	4.60	533	18.0	0.127
DEM67	370988	3746465	4.42	4.60	533	18.0	0.127
DEM68	370978	3746488	4.42	4.60	533	18.0	0.127
DEM69	370968	3746511	4.42	4.60	533	18.0	0.127
DEM70	370958	3746533	4.42	4.60	533	18.0	0.127
CONS01	370968	3746667	4.42	4.60	533	18.0	0.127
CONS02	370989	3746622	4.42	4.60	533	18.0	0.127
CONS03	371010	3746577	4.42	4.60	533	18.0	0.127
CONS04	371031	3746531	4.42	4.60	533	18.0	0.127
CONS05	371052	3746486	4.42	4.60	533	18.0	0.127
CONS06	371072	3746440	4.42	4.60	533	18.0	0.127
CONS07	371080	3746619	4.42	4.60	533	18.0	0.127
CONS08	371086	3746570	4.42	4.60	533	18.0	0.127
CONS09	371091	3746520	4.42	4.60	533	18.0	0.127
CONS10	371096	3746470	4.42	4.60	533	18.0	0.127
CONS11	371102	3746420	4.42	4.60	533	18.0	0.127
CONS12	371107	3746371	4.42	4.60	533	18.0	0.127
CONS13	371113	3746321	4.42	4.60	533	18.0	0.127
CONS14	371118	3746271	4.42	4.60	533	18.0	0.127
CONS15	371124	3746222	4.42	4.60	533	18.0	0.127
CONS16	371129	3746172	4.42	4.60	533	18.0	0.127
CONS17	371076	3746173	4.42	4.60	533	18.0	0.127

Redondo Beach Energy Project
Attachment DR67-2 Table 2
Construction Modeling Parameters - Emission Rates
January 2014

Emission Rates for 1-hour, 3-hour, 8-hour, and 24-hour Modeling [a]

Source ID	1-hour NO_2		1-hour CO		8-hour CO		1-hour SO_2		3-hour SO_2		24-hour SO_2		24-hour PM_{10}		24-hour $PM_{2.5}$	
	(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)
DEMOEXH (01-70) [a]	-	-	0.36	2.82	0.36	2.82	0.00088	0.0070	0.00088	0.0070	0.00037	0.0029	-	-	-	-
DEMOFUG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONSEXH (01-17) [a]	1.15	9.11	0.26	2.04	0.26	2.04	0.00046	0.0036	0.00046	0.0036	0.00019	0.0015	0.025	0.20	0.023	0.18
CONSFUG	-	-	-	-	-	-	-	-	-	-	-	-	0.093	0.74	0.023	0.18
Maximum Month	23		39		39		42		42		42		15		15	

Emission Rates for Annual Modeling [a]

Source ID	Annual NO_2		Annual PM_{10}		Annual $PM_{2.5}$	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)
DEMOEXH (01-70) [b]	-	-	0.011	0.087	-	-
DEMOFUG	-	-	0.063	0.50	-	-
CONSEXH (01-17) [b]	0.34	2.70	0.0016	0.012	0.016	0.13
CONSFUG	-	-	0.0050	0.040	0.013	0.10
Maximum Months	15-26		43-54		15-26	

[b] Emission rates for exhaust point sources (DEMOEXH and CONSEXH) are presented as the sum total for all sources in the group.

Redondo Beach Energy Project
Attachment DR67-2 Table 3
Construction Modeling Results
January 2014

Source	Year	NO_2 (µg/m^3) [a]			CO (µg/m^3)		SO_2 (µg/m^3)			PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)	
		1-hour	Federal 1-hour [b]	Annual	1-hour	8-hour	1-hour	3-hour	24-hour	24-hour	Annual	24-hour	Annual
ALL	2005	94.4	171	6.49	47.7	36.3	0.11	0.10	0.023	20.5	6.43	5.63	1.62
EXH		94.4	88.9	6.49	47.7	36.3	0.11	0.10	0.023	1.05	0.26	0.97	0.40
FUG		-	-	-	-	-	-	-	-	19.7	6.18	4.90	1.22
ALL	2006	93.2	180	6.30	47.1	37.2	0.11	0.10	0.025	20.8	6.97	5.71	1.51
EXH		93.2	89.5	6.30	47.1	37.2	0.11	0.10	0.025	0.94	0.27	0.87	0.39
FUG		-	-	-	-	-	-	-	-	20.1	6.72	5.00	1.13
ALL	2007	95.9	174	6.67	47.1	36.1	0.11	0.10	0.023	22.4	6.10	6.12	1.69
EXH		95.9	89.0	6.67	47.1	36.1	0.11	0.10	0.023	1.10	0.26	1.02	0.42
FUG		-	-	-	-	-	-	-	-	21.6	5.85	5.38	1.29
ALL	2008	93.9	173	6.69	47.3	36.7	0.11	0.11	0.022	19.6	5.97	5.43	1.73
EXH		93.9	87.9	6.69	47.3	36.7	0.11	0.11	0.022	0.98	0.26	0.91	0.42
FUG		-	-	-	-	-	-	-	-	18.8	5.72	4.68	1.32
ALL	2009	92.1	174	6.67	47.4	35.6	0.11	0.10	0.022	20.8	6.40	5.73	1.70
EXH		92.1	87.6	6.67	47.4	35.6	0.11	0.10	0.022	1.00	0.26	0.92	0.42
FUG		-	-	-	-	-	-	-	-	20.0	6.14	4.98	1.29

[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] Total predicted concentration for the federal 1-hour NO_2 standard (source ALL) is the high 8th high pairing of modeled concentrations with the 3-year average of 98th percentile seasonal hourly background concentrations, as provided by the SCAQMD.

Noise (69–70)

BACKGROUND

In an environment similar to that surrounding the project site, in a typical evening, air is coldest near the ground and air temperature increases at higher altitudes. This temperature gradient causes sound waves to refract downward. This condition, often referred to as a temperature inversion causes sound to bend downward toward the ground and results in louder noise levels at the listener position. Temperature gradients can influence sound propagation over long distances and cause more adverse impacts at noise receptors than under normal conditions (without inversion). At the Data Request Workshop conducted on December 5, 2013, the applicant stated that it has accounted for the effect of weather inversion in its operational noise modeling, but staff and the applicant did not discuss the details of the resulting effect at any of the noise receptors in the area surrounding the project site. Since the effect of inversion may be realized at the noise-sensitive receptors located at relatively far distances to the project site, staff needs the following information in order to incorporate a complete discussion of this effect in the Preliminary Staff Assessment.

DATA REQUEST

69. Please explain what the effect of temperature inversion is at distances of 0.5-1.0 mile from the center of the project's power block. Please explain whether or not its effect would be different than if the project's operational noise modeling were performed without considering temperature inversion. If the effect is different, then explain this effect in terms of sound levels at the above distances, and discuss whether or not the resulting sound levels would comply with the applicable noise thresholds required by all the local jurisdictions within 1.0 mile of the RBEP.

Response: The AFC modeling assumes inversion. As stated in Section 5.7.3.3.3 of the AFC, the sound propagation factors used in the model have been adopted from International Organization for Standardization (ISO) 9613-2, *Acoustics – Sound Attenuation during Propagation Outdoors* (ISO, 1996). The ISO standard is based on downwind condition, that is wind blowing from the source to the receiver and states that "These equations also hold, equivalently, for average propagation under a well-developed moderate ground-based temperature inversion…" The presence of an inversion, is therefore considered in the preliminary modeling developed to support the AFC. The noise of effects of the Project would not be different if the project's operational noise modeling were performed without considering temperature inversion because the expected sound levels without the inversion would be lower..

The modeled sound level decreases with increasing distance from the RBEP. As the operational noise modeling shows that the sound effects of the Project will comply with the applicable thresholds at distances much closer than 0.5 – 1.0 mile, it will also comply with the applicable threshold at distances up to and beyond 1.0 mile with or without the temperature inversion considered in the model.

BACKGROUND

The project site is located next to a marine harbor at sea level. The topography in the area east of the project site slopes upward along the lines of North Catalina Avenue and the Pacific Coast Highway. Noise from the power block can be refracted on the noise receptors at the elevated areas east of the site. Staff needs to know if these changes in elevation would in fact cause project-related acoustical irregularities at these receptors.

DATA REQUEST

70. Please explain the acoustical effects of these changes in elevation in project sound levels that would be heard by the noise receptors located at the higher elevations described above, and discuss whether or not the resulting sound levels would comply with the applicable noise thresholds required by all the local jurisdictions in which these receptors are located.

Response: The acoustical effects of project sound levels at higher elevations will be the same as the acoustical effects at lower elevations at the same distance because the modeling does not assume any freestanding barriers between the project's primary noise generating equipment and noise receptors at higher or lower elevations. Therefore, regardless of elevation, the resulting sound levels will comply with applicable noise thresholds.