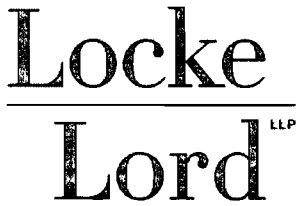


DOCKETED

Docket Number:	00-AFC-14C
Project Title:	El Segundo Power Redevelopment Project Compliance
TN #:	200666
Document Title:	Applicant's Supplemental Responses to Certain Data Requests in Set One (17, 19, 23, 34, 36, 38, 40 and 56).
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Filer:	Tiffani Winter
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September 23 2013

VIA HAND-DELIVERY

El Segundo Energy Center Petition to Amend (00-AFC-14C) Siting Committee
Commissioner Karen Douglas – Presiding Member
Commissioner Janae A. Scott – Associate Member
Paul Kramer – Hearing Officer
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512


Re El Segundo Energy Center Petition to Amend (00-AFC-014C)
Applicant’s Supplemental Responses to Certain Data Requests in Set One
(Nos 17, 19, 23, 34, 36, 38, 40 and 56)

Dear Committee Members

On September 12, 2013, the Applicant, El Segundo Energy Center LLC (“ESEC LLC”), responded to the Energy Commission staff’s Data Request Set 1 (“Data Responses”) related to ESEC LLC’s Petition to Amend the El Segundo Energy Center project (00-AFC-014C). At that time, ESEC LLC notified the Commission that it had been unable to complete, in time for that filing, the modeling and analysis for the emissions-related Data Responses 19, 23, 34, 36, 38, 40 and 56. Such modeling and analysis was subsequently completed, and ESEC LLC identified and corrected an error in Data Response 17. Accordingly, ESEC LLC hereby submits the enclosed, supplemental data to complete its responses to Data Request Set 1.

Please contact me or my colleague Allison Harris if there are any questions about any of the enclosed Responses.

Locke Lord LLP

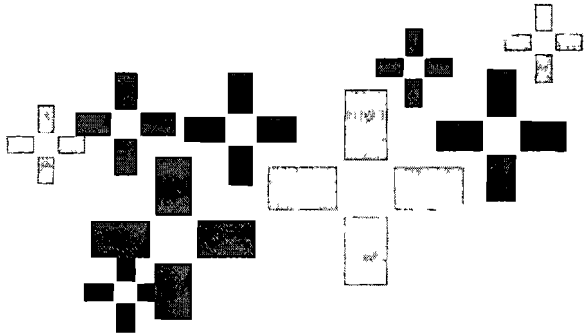
By 

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Attorneys for El Segundo Energy Center LLC

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Enclosures

SAC 442612v 2



**EL SEGUNDO ENERGY CENTER
PETITION TO AMEND
(00-AFC-14C)**

**Data Responses, Set 1a
(Supplemental Response to Data Requests
17, 19, 23, 34, 36, 38, 40, 56)**

SUBMITTED BY
EL SEGUNDO ENERGY CENTER, LLC



WITH TECHNICAL ASSISTANCE FROM
CH2MHILL.

SEPTEMBER 23 2013

El Segundo Energy Center Petition to Amend

El Segundo Power Facility Modification

(00-AFC-14C)

Data Responses, Set 1a

(Supplemental Response to Data Requests 17, 19, 23,
34, 36, 38, 40, 56)

Submitted to
California Energy Commission

Prepared by
El Segundo Energy Center LLC

With Assistance from

CH2MHILL®

2485 Natomas Park Drive
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September 23, 2013

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Attachments

Modeling Files (provided on compact disc)

Introduction

Attached are El Segundo Energy Center LLC's (ESEC LLC or the Applicant) supplemental responses to the California Energy Commission (CEC) Staff's Data Requests, Set 1, regarding the El Segundo Energy Center (ESEC) (00-AFC-14C) Petition to Amend (PTA), El Segundo Power Facility Modification (ESPFM) The supplemental responses are include the information that could not be provided until after completion of additional modeling necessary to address Staff requests

The responses are presented in the same order as CEC Staff 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 17 would be numbered Table DR17-1 The first figure used in response to Data Request 17 would be Figure DR17-1, and so on

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data or stand-alone documents such as plans, folding graphics, etc) are found at the end of the section and may not be sequentially numbered

Air Quality (17, 19, 23, 34, 36, 38, 40, 56)

Construction Emissions

BACKGROUND

The facility owner estimated the construction emissions using CalEEMod. In order to replicate the construction emissions, staff needs the original project setup parameters and live input spreadsheets (xls or csv files) for CalEEMod

Page 3-23 of the PTA indicated that fugitive dust emissions were estimated using CalEEMod which, in turn, uses AP-42 emission factors. CalEEMod requires parameters such as percentage of pavement, road silt loading, average vehicle weight for paved road dust and material silt content, material moisture content, and mean vehicle speed for unpaved road dust. Staff needs these parameters to complete the review of the fugitive dust emissions estimation.

Page 21 of Appendix 3 1C Modeling Protocol mentioned wind-blown fugitive dust emissions, sources at or near the ground that are at ambient temperature and have negligible vertical velocity, and would be modeled as area sources with a release height of 0.5 meters. According to the CalEEMod (version 2011.1) user's guide, fugitive dust from wind-blown sources such as storage piles are not quantified in CalEEMod. Staff cannot find any information regarding the wind-blown dust in the emissions estimation or in the modeling files.

Staff found inconsistencies in the maximum daily and annual construction emissions shown in Table 3 1-13, Table 3 1-14, and Table 3 1D-1. For example, the maximum daily onsite fugitive PM10 emission in Table 3 1-13 is shown to be 206 lbs/day, but it is 8.95 lbs/day in Table 3 1D-1.

DATA REQUEST

17 Please correct the inconsistencies in the construction emissions tables (Table 3 1-13, Table 3 1-14, and Table 3 1D-1)

Response The headings in the revised Table 3 1 14R in Data Responses, Set 1 (dated September 12, 2013) were incorrect. The revised table, with corrected headings, is shown below. The revisions to the data were included in the previous version of Table 3 1 14R, revised September 12, 2013, which was contained in Data Responses Set 1.

TABLE 3 1 14R (REVISED SEPTEMBER 23, 2013)
Maximum Annual Construction Emissions, Tons per Year

	NOx	CO	VOC	SOx	PM _{2.5} PM ₁₀	PM ₁₀ PM _{2.5}
Onsite						
Construction Equipment	19.822	23.526	3.111	0.1	1.509	1.509
Fugitive Dust	—	—	—	—	0.201	0.400
Offsite						
Worker Travel Truck Deliveries	8.111	30.369	2.623	0.0	0.516	7.504
Total	28.023	53.833	5.734	0.1	2.226	9.415

Hourly Emission Rates During Construction

BACKGROUND

Page 3-34 of the PTA stated that all construction activities were assumed to occur during an 8-hour work day. However, in the construction impact analysis, staff noticed that the hourly emission rates were calculated based on the maximum daily emissions averaged over 16 hours. The hourly emissions rates calculated based on daily emissions averaged over 16 hours would be half of those based on daily emissions averaged over 8 hours.

DATA REQUEST

19 Please revise the impact analysis or emissions estimation to ensure consistency.

Response As indicated in Data Responses Set 1,¹ the construction schedule has been updated. New modeling has been performed, based on the revised construction emissions based on the updated schedule. The results of the new modeling are presented in Table 3 1-22R.

Although daily emissions will be lower than previously estimated (See Tables 3 1D 2R and 3 1D 3R), predicted impacts for NO₂, SO₂, and CO are slightly higher, reflecting the shorter daily construction shift (now assumed to be 8 hours per day instead of 16 hours per day). PM impacts are substantially lower, reflecting lower emissions due to use of project-specific equipment usage factors instead of the CalEEMod defaults that were previously used.

Table 3 1-22R shows that the new modeling of the revised construction schedule's impacts do not change any of the conclusions contained in the PTA. Worst-case background concentrations of PM₁₀ and PM_{2.5} are already above California standards, while they are below the federal standards. The project's modeled annual PM₁₀ and PM_{2.5} impacts are small relative to the background concentrations of PM₁₀ and PM_{2.5}, the annual PM_{2.5} impact is below the federal recommended threshold for significance of 0.3 µg/m³.

Because the federal 1-hour NO₂ standard requires averaging the concentrations over 3 years, the NO₂ impacts during the 26-month long demolition and construction period, 14 months of which have elevated NO₂ emissions, followed by the 4-month-long commissioning period, with only 30 days of elevated NO₂ emissions, would not be likely to cause a new violation of the federal 1-hour NO₂ standard. See additional discussion under the response to Data Response 23, below.

The project's construction emissions will result in potentially significant impacts for PM₁₀ and PM_{2.5}, but those impacts will be lower than those described in the PTA. Mitigation measures to be used to minimize emissions during construction are described in detail in Appendix 3 1D of the PTA.

Table 3 1 22R shows that construction emissions will not cause new exceedances of any other state or federal air quality standards.

¹ See for example responses to Data Requests 3 and 14 in Data Response Set 1 docketed on September 12, 2013.

TABLE 3 1D 2R (REVISED SEPTEMBER 23, 2013)
Modeled Emissions – Short Term Impacts

Short Term Impacts (24 hours and less)

	NOx	CO	SOx	PM ₁₀	PM _{2.5}
TOTAL					
Off Road Equipment (Combustion) (lbs/day)	<u>185.56</u> 206.44	<u>219.33</u> 217.99	0.41	<u>9.37</u> 13.43	<u>8.00</u> 13.43
Off Road Equipment (Combustion) (hrs/day)	<u>8</u> 16	<u>8</u> 16	<u>8</u> 16	<u>8</u> 16	<u>8</u> 16
Off Road Equipment (Combustion) (lbs/hr)	<u>23.19</u> 12.90	<u>27.42</u> 13.62	<u>0.05</u> 0.03	<u>1.17</u> 0.84	<u>1.00</u> 0.84
Off Road Equipment (Combustion) (g/sec)	<u>2.92</u> 1.63	<u>3.45</u> 1.72	<u>0.01</u> 0.00	<u>0.15</u> 0.11	<u>0.13</u> 0.11
Fugitive Dust (lbs/day)				<u>0.77</u> 8.95	<u>0.12</u> 4.91
Fugitive Dust (hrs/day)				8	8
Fugitive Dust (lbs/hr)				<u>0.10</u> 1.12	<u>0.01</u> 0.61
Fugitive Dust (g/sec)				<u>0.01</u> 0.14	<u>0.00</u> 0.08

TABLE 3 1D 3R (REVISED SEPTEMBER 23, 2013)
Modeled Emissions – Long-Term Impacts

Long Term Impacts (annual)

	NOx	CO	SOx	PM ₁₀	PM _{2.5}
TOTAL					
Off Road Equipment (Combustion) (tons/yr)	<u>21.77</u> 19.81	<u>25.75</u> 23.47	<u>0.05</u> 0.01	<u>0.93</u> 1.50	<u>0.93</u> 1.50
Off Road Equipment (Combustion) (days/yr)	<u>262</u> 269	<u>262</u> 269	<u>262</u> 269	<u>262</u> 269	<u>262</u> 269
Off Road Equipment (Combustion) (hrs/day)	<u>8</u> 16	<u>8</u> 16	<u>8</u> 16	<u>8</u> 16	<u>8</u> 16
Off Road Equipment (Combustion) (lbs/hr)	<u>20.77</u> 9.21	<u>24.57</u> 10.91	<u>0.05</u> 0.00	<u>0.89</u> 0.70	<u>0.89</u> 0.70
Off Road Equipment (Combustion) (g/sec)	<u>2.62</u> 1.16	<u>3.10</u> 1.37	<u>0.01</u> 0.00	<u>0.11</u> 0.09	<u>0.11</u> 0.09
Fugitive Dust (tons/yr)				<u>0.05</u> 0.39	<u>0.01</u> 0.19
Fugitive Dust(days/yr)				<u>262</u> 269	<u>262</u> 269
Fugitive Dust (hrs/day)				<u>8</u> 16	<u>8</u> 16
Fugitive Dust (lbs/hr)				<u>0.04</u> 0.18	<u>0.01</u> 0.09
Fugitive Dust (g/sec)				<u>0.01</u> 0.02	<u>0.00</u> 0.01

TABLE 3 1 22R (REVISED SEPTEMBER 23, 2013)
Modeled Maximum Impacts During Construction^e

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Maximum Background Concentration ($\mu\text{g}/\text{m}^3$)	Total Concentration ^a ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	CAAQS ($\mu\text{g}/\text{m}^3$)
NO ₂	1 hr	225.7 <u>229.1</u>	184.2	276.4 <u>287.9</u> ^c	—	339
	Fed 1 hour	225.7 <u>229.1</u>	129.7 ^b	263.5 <u>240.5</u> ^d	188	—
	Annual	28.2 <u>28.5</u>	24.5	52.7 <u>53.0</u>	100	57
SO ₂	1 hr	1.3 <u>2.4</u>	67.6	68.9 <u>70.0</u>	196	655
	3 hr	0.9 <u>1.2</u>	41.6	42.5 <u>42.8</u>	1300	—
	24 hr	0.4 <u>0.3</u>	15.8	16.2 <u>16.1</u>	—	105
CO	1 hr	797 <u>1,276</u>	3,250	3,957 <u>4,526</u>	40,000	23,000
	8 hr	339 <u>493</u>	2,433	2,772 <u>2,926</u>	10,000	20,000
PM ₁₀	24 hr	19 <u>7.6</u>	52	71 <u>60</u>	150	50
	Annual	3.6 <u>1.3</u>	25.6	29.2 <u>26.9</u>	—	20
PM _{2.5}	24 hr	7.6 <u>1.3</u>	30	50.1 <u>37.6</u>	35	—
	Annual	1.3 <u>1.3</u>	12.8	16.0 <u>14.1</u>	12.0	12

^aThe total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

^bBackground concentration for Federal 1 hour standard is 3 year average of 98th percentile of daily maximum 1 hour average concentration.

^cTotal Concentration for 1 hr NO₂ is the highest value of the sum of the modeled impact plus the corresponding ambient background concentration for that time of day.

^dTotal concentration for Fed 1 hour NO_x is the highest eighth highest value of the daily maximum of the sum of the modeled impact plus the corresponding ambient background concentration for that time of day.

^eThe values in this table reflect the revised construction schedule dated September 12, 2013.

Construction Impacts

BACKGROUND

Table 3 1-22 shows construction activities would cause violation of the federal 1-hour NO₂ standard and 24-hour PM_{2.5} standard. Staff expects the construction impacts would be even higher if the source parameters are revised as requested in the data request 10. Although as described in the Air Quality section of the PTA, construction is expected to last only 20 months, the project impacts would not be zero after the construction period because the project would go through commissioning and then normal operation. In addition, there are inconsistencies in some of the decommissioning, demolition, and construction schedules and impact descriptions within the Section 3 Environmental Analysis within the PTA (see details in Data Requests 3 and 4). Staff would like to ensure the emissions and impacts from the decommissioning and demolition are also included in the analysis. Staff would like to know if the construction equipment counts and construction schedule could be revised so that the maximum construction emissions could be reduced. Staff would like to know if the facility owner would propose more mitigation measures to reduce the construction impacts. Staff would like to have a more refined analysis that identifies the spatial extent and number of exceedances of the federal 1 hour NO₂ standard and 24-hour PM_{2.5} standard.

DATA REQUEST

- 23 Please provide a more refined analysis that identifies the spatial extent and number of exceedances of the federal 1-hour NO₂ standard and 24-hour PM_{2.5} standard, including construction, commissioning and operations to evaluate the project's impact relative to these standards

Response As discussed in Data Response Set 1,² EPA does not consider temporary emissions when evaluating compliance with National Ambient Air Quality Standards (NAAQS) under the PSD program. Therefore, the requested analysis should not be considered to be a compliance determination, nor can any outcome that includes analysis of temporary emissions be considered a "violation" of the standard.

As requested by the Staff, the Applicant has performed an analysis that identifies receptors where the model predicts concentrations above the value of the standard.

Modeling was performed using 2009 meteorology. This year was chosen because it is the most recent year for which a complete set of meteorological data were provided by the District.

Ambient NO₂ concentrations were determined using seasonal daily profiles provided by the District.

Using these data, impacts were evaluated for the three consecutive years beginning with Month 9 of the construction period. Month 9 was selected because it is the first month of the 12 month period with the highest construction emissions. The analysis period then continues through the commissioning period and the first 16 months of normal operations.

The assumptions used in the analysis are summarized in Table DR23-1.

TABLE DR23 1

Construction/Commissioning/Operation Impact Analysis Assumptions

Time Period	Background Concentrations	Units 5 & 7	Units 9, 11, 12, and Aux, Boiler
Month 1-12	Seasonal daily profile	Startup	Peak hourly emissions from construction
Months 13-18	Seasonal daily profile	Startup	Average hourly emissions from months 13-18 of the construction period
Month 19	Seasonal daily profile	Startup	Peak hourly emissions from commissioning
Months 20-36	Seasonal daily profile	Startup	Peak hourly emissions from operation = startup*

*There are approximately 30 days during the commissioning period with elevated NO_x emissions (prior to installation and tuning of the SCR). Emissions on those days were modeled at the peak commissioning rate. During the rest of the commissioning period, emissions are approximately the same as normal operations. Emissions on those days were modeled at the peak hourly operating rate, which is the same as the startup hourly emission rate.

Results of this evaluation are summarized in Tables DR23-2 and DR23-3. Figure DR23-1 shows the number of receptors where the model predicts NO₂ concentrations above the value of the standard, and the number of days at each receptor that such concentrations occur during the 3 year period described in the previous paragraph. Figure DR23-1 and Table DR23-2 show that concentrations above the 1-hour NO₂ NAAQS are not predicted more than 60 meters from the facility boundary.

Table DR23-3 shows that almost all of the modeled impacts above the 24-hour PM_{2.5} NAAQS are on days when the background concentration, by itself, exceeds the standard. There is a limited area, shown in

² See response to DR 23 in Data Response Set 1, September 12, 2013.

Figure DR23 2, where the model predicts concentrations above the value of the standard on as many as three different days when the background, alone, does not exceed the standard

TABLE DR23 2
Construction/Commissioning/Operation Impacts—NO₂

Number of days with exceedances (in 3 year period)	Number of Receptors	Maximum Distance from Project (m)
1 20	111	<60
21 40	14	<40
41 60	9	<20
60 80	5	<20
81 100	8	fenceline
101 120	4	fenceline

TABLE DR23 3
Construction/Commissioning/Operation Impacts—PM_{2.5}

Number of days with exceedances (in 3 year period)	Number of Receptors	Maximum Distance from Project (m)
1 10	0	—
11 20	0	—
21 30	0	—
31 40	All receptors	Background above standard

FIGURE DR23 1
Construction/Commissioning/Operation Impacts—NO₂

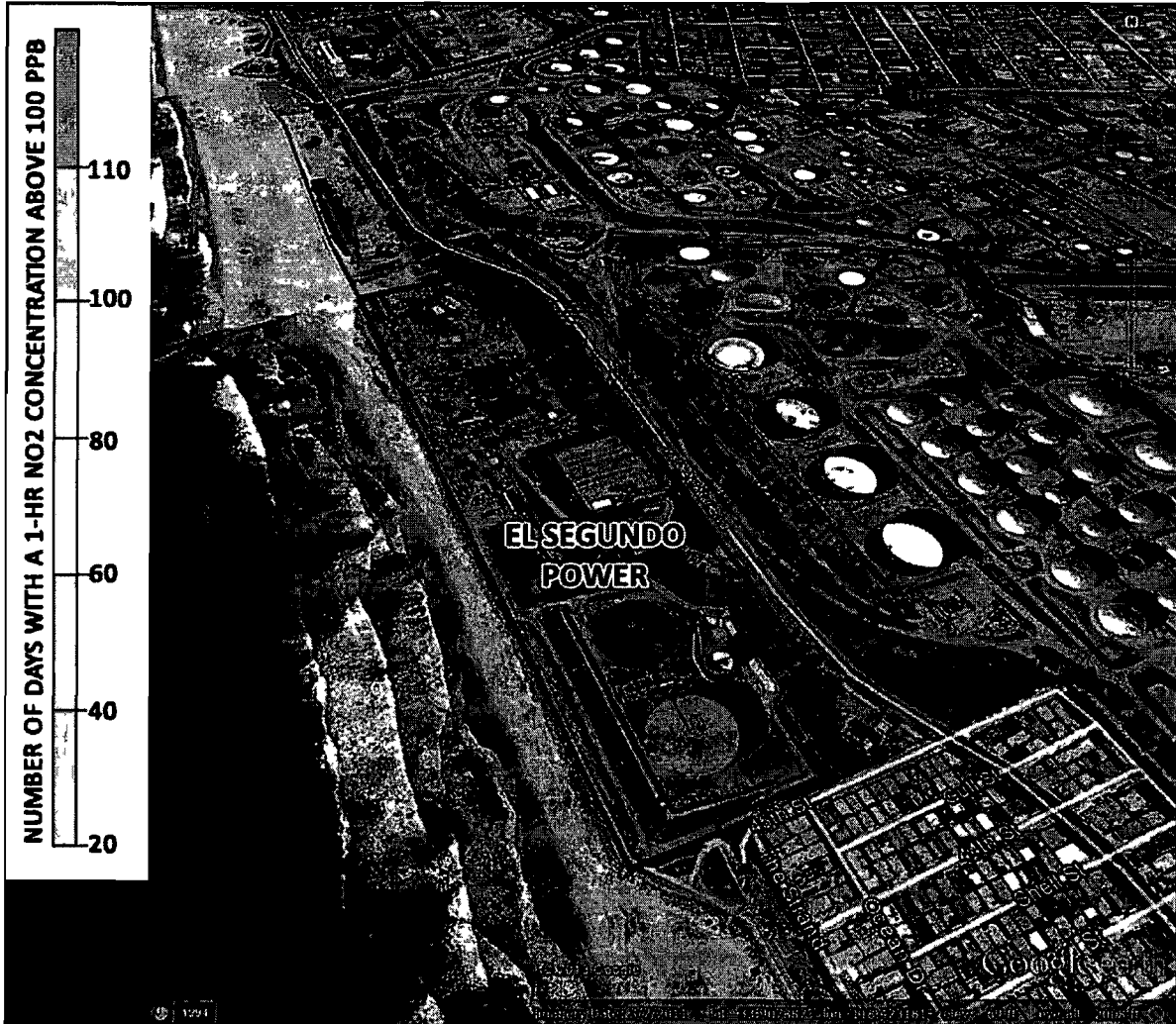
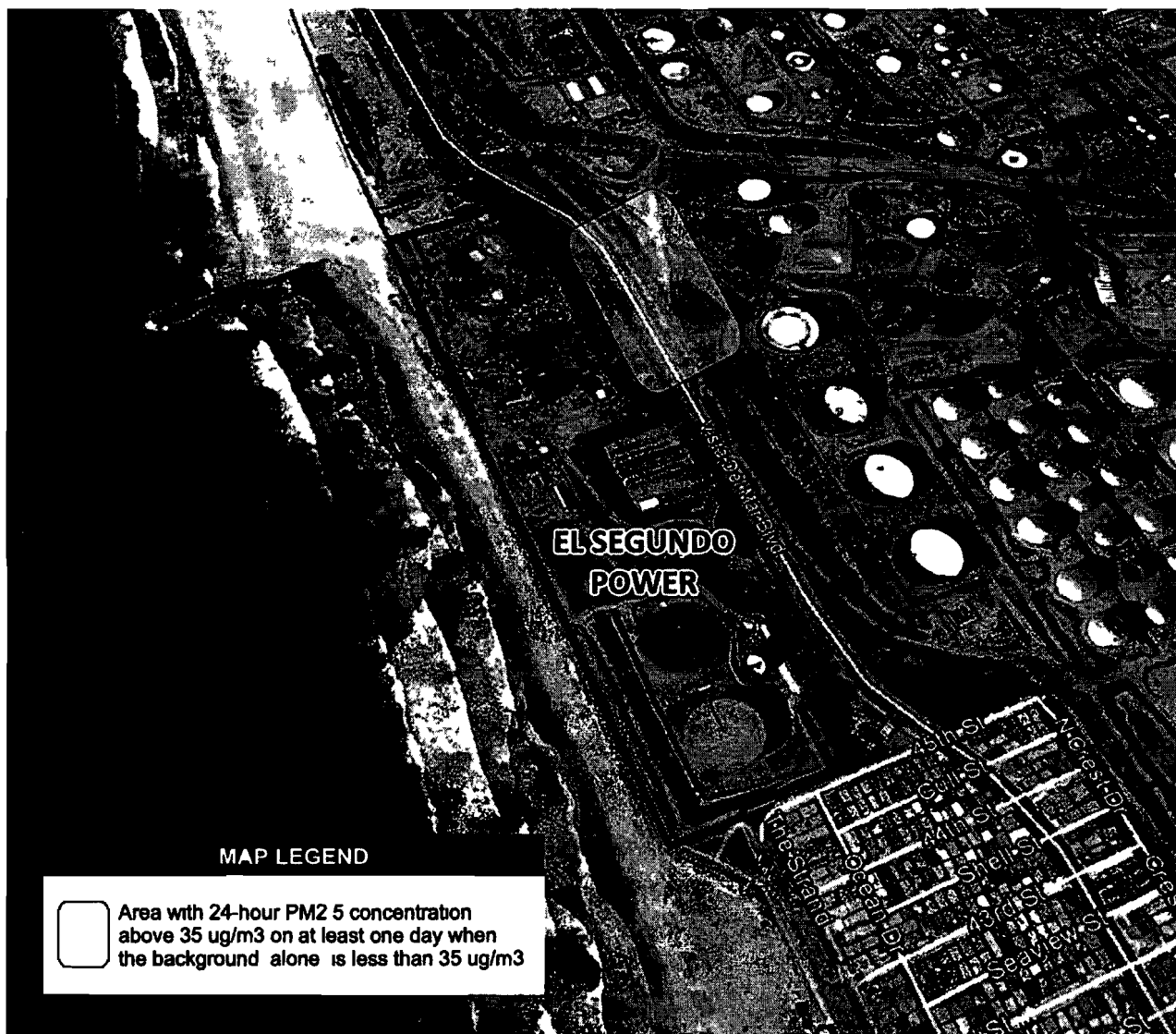


FIGURE DR23 2
Construction/Commissioning/Operation Impacts—PM_{2.5}



Operating Schedule of the Auxiliary Boiler

BACKGROUND

On page 3-36 of the PTA and in the air quality modeling files, staff noticed the auxiliary boiler was not included in short-term impacts analysis but only included in the annual impacts analysis. However, note 1 of Table 3 1A 3 shows the boiler would not operate at all when Unit 9 is operating, except for the first 20 minutes of startup when it would operate at 100 percent load. Thus the auxiliary boiler would operate simultaneously with Unit 9 during startup. The maximum hourly emissions from the auxiliary boiler would be higher than those shown in Table 3 1-18, which are based on 25 percent load.

The PTA has different assumptions for the operating hours of the auxiliary boiler at different places. The facility owner conservatively estimated the annual emissions of the auxiliary boiler in Table 3 1-18 based on 8,760 hours of operations at 25 percent load. Table 3 1A-19 assumed the auxiliary boiler would operate 3,304 hours per year at 25 percent load and 33 hours at 100 percent load to calculate the annual emissions.

Staff estimated that if the auxiliary boiler would operate at 100 percent load for the first 20 minutes of startup of Unit 9, the auxiliary boiler would operate 66.7 hours (= 200 startup hours*20/60) at 100 percent load instead of 33 hours. The Greenhouse Gas (GHG) emissions estimated in Table 3.1A-20 are based on the assumption that the auxiliary boiler would operate 3,304 hours per year, instead of 8,760 hours as in Table 3.1-18 or the total of 3,304 hours and 33 hours (which should be 66.7 hours as shown above) as in Table 3.1A-19.

DATA REQUEST

34 Please revise the short-term impacts analysis to include the auxiliary boiler to take into account the overlap between the operations of the auxiliary boiler and other units.

Response The auxiliary boiler was not explicitly modeled in the short term impacts analysis, because its maximum hourly emissions are small (by more than a factor of 20 for all pollutants) relative to the GE turbine. However, in response to Staff's request, the auxiliary boiler has been added to the short-term impacts modeling analysis. As expected, the impacts from the auxiliary boiler are negligible. Please see Table 3.1.25R (note that the change in commissioning emissions shown in Table 3.1-25R is due to the revisions to the commissioning schedule and not to adding the auxiliary boiler emissions to the analysis).

TABLE 3.1.25R (REVISED SEPTEMBER 23, 2013)
Modeling Results for New Units ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Normal Operation	Fumigation–Inversion	Fumigation–Shoreline	Commissioning
NO ₂	1 hr	25.1 ^a	2.7	16.9	66.1 <u>53.1</u>
	98 th percentile	23.1 ^a	—	—	^d
	Annual	0.5	^b	^b	^c
SO ₂	1 hr	1.2	1.0	4.5	
	3 hr	0.8	0.9	2.3	^c
	24 hr	0.3	0.4	0.4	
CO	1 hr	109.0 ^a	2.0	12.4	797.4 <u>165</u>
	8 hr	12.2 ^a	1.3	2.6	654.9 <u>117</u>
PM ₁₀ /PM _{2.5}	24 hr	1.2	1.1	1.4	^c
	Annual	0.3	^b	^b	

^aOne hour average NO₂ and CO and 8 hour average CO reflect startup impacts.

^bNot applicable because inversion breakup is a short term phenomenon and as such is evaluated only for short term averaging periods.

^cNot applicable, because emissions are not elevated above normal levels during commissioning for this pollutant/averaging period.

^dCommissioning not included in evaluation of compliance with federal 1 hour standard because commissioning is a once in a lifetime event and is thus not applicable to the form of the 1 hr NO₂ NAAQS.

Overlap Between Demolition, Construction, and Operation

BACKGROUND

The PTA analyzed the impacts of the entire facility by considering the overlap of the commissioning and operation of the new units with the operation of Units 5 and 7. The PTA did not analyze the impacts due to the overlap between the decommissioning and demolition of the old units, construction of the new units, and the operation of Units 5 and 7. Staff needs to review such analysis to complete the analysis of the impacts during construction of the new units.

DATA REQUEST

- 36 Please provide an impact analysis considering the overlap of the decommissioning and demolition of the old units, construction of the new units, and the operation of Units 5 and 7

Response Because there will be no heavy equipment operating during decommissioning, off-road equipment emissions during that phase from the project site are insignificant. Other emissions (from worker and truck traffic) will also be much lower than during construction. Total impacts during decommissioning will therefore be much lower than during construction.

Demolition activities were already included in the construction schedule, so the construction modeling analysis addresses demolition activities as well.

The results of the requested analysis are discussed in the response to DR23, above.

Impact Analysis of Units 5 and 7**BACKGROUND**

Tables 3 1B-7 and 3 1B-8 of the PTA show the same stack parameters were used in the modeling for Units 5 and 7 for different averaging periods. Staff would like to know if the facility owner has demonstrated previously that these parameters would lead to most conservative estimates of ground level concentrations.

Table 3 1-8 shows the modeled startup/shutdown emission rate of NO_x would be 11.48 grams per second (g/s), which is 91 lb/hr per turbine. This is lower than the emission limit of 112 lbs per startup per turbine with each startup not to exceed 60 minutes, as specified in AQ-20 of the 2010 Commission Decision to the Amendment for El Segundo Power Redevelopment Project (CEC-800-2010-015).

The modeled short-term NO_x and CO emissions rates during normal operations shown in Table 3 1B-7 are lower than the maximum emissions shown in Table 16 of the 2010 revised FDOC for El Segundo Power Redevelopment Project (TN 56837). For example, Table 3 1B-7 shows the modeled short-term NO_x emission rate during normal operations is 1.0573 g/s, which is 8.39 lb/hr per turbine, while the maximum NO_x emissions rate shown in Table 16 of the 2010 revised FDOC is 30.88 lb/hr for both turbines, which is 15.44 lb/hr per turbine.

The modeling files show the NO₂/NO_x ratios for Units 5 and 7 would be 0.45 during startups and 0.3 during normal operations. These ratios are the same as those for the GE turbine (Unit 9) in Table 3 1-24 of the PTA. Staff would like to know if the ratios for Units 5 and 7 were also reviewed and approved by the District.

DATA REQUEST

- 38 Please revise the modeling analysis to be consistent with the emission limits and estimates specified in the 2010 Commission Decisions to the Amendment and 2010 revised FDOC for El Segundo Power Redevelopment Project, or state that the facility owner is willing to accept these lower emissions limits.

Response As discussed in the response to DR 37, worst-case impacts for the operation of Units 5 and 7 occur at low loads. All modeling analyses that include Units 5 and 7 in normal operations have not been revised, and continue to use the Unit 5 and 7 stack characteristics that result in the highest impact.

All modeling analyses that include Units 5 and 7 in startup mode have been revised to reflect the revised startup NO_x emission limit of 112 lbs/hr (per unit) for these units.

Table 3 1-26R shows that the higher maximum startup emissions from Units 5 and 7 result in a higher impact from those emission units. Table 3 1-26R also shows that the maximum facility impact, which will occur

during commissioning, will be lower due to lower maximum hourly emissions during commissioning
Table 3 1-29R shows the combined impact of the facility and the measured background concentrations

The conclusions in the PTA regarding commissioning emissions are therefore not affected by the revised analysis

TABLE 3 1 26R (REVISED SEPTEMBER 23, 2013)
Modeling Results for Entire Facility ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Maximum Modeled Concentration, $\mu\text{g}/\text{m}^3$		
		Units 9, 11 and 12	Units 5 and 7	All Units
NO ₂	1 hr	<u>66.1 53 1^a</u>	<u>21.0 25 8^c</u>	<u>67.3 54 8^d</u>
	98 th percentile	23 1 ^c	<u>17.9 22 0^c</u>	<u>63.9 32 7^c</u>
	Annual	0 5	0 1	0 6
SO ₂	1 hr	4 5 ^b	3 1 ^b	7 5 ^b
	3 hr	2 3 ^b	0 8 ^b	3 1 ^b
	24 hr	0 4 ^b	0 1 ^b	0 5 ^b
CO	1 hr	<u>797.5 165^a</u>	51 5 ^c	<u>849.0 252^d</u>
	8 hr	<u>654.9 117^a</u>	37 8 ^c	<u>692.7 195^d</u>
PM ₁₀ /PM _{2.5}	24 hr	<u>1.8 1.4^b</u>	0 4 ^d	<u>2.2 1.8</u>
	Annual	0 3	0 1	0 4

^a Maximum impacts occur under commissioning conditions (i.e., no SCR or oxidation catalyst)

^b Maximum impacts occur under shoreline fumigation conditions

^c Reported impacts reflect startup conditions

^d Units 9 11 and 12 in commissioning Units 5 and 7 in startup No auxiliary boiler operation assumed see text

TABLE 3 1 29R (REVISED SEPTEMBER 23, 2013)
Modeled Maximum Impact for Entire Facility ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Maximum Impact	Background	Total Impact	State Standard	Federal Standard
NO ₂	1 hr	<u>67.3 54 8^a</u>	184 2	<u>252.0 239 0</u>	339	—
	98 th percentile	<u>63.9 32 7^b</u>	129 7	<u>150.6 130 5</u>	—	188
	Annual	0 6	24 5	25 1	57	100
SO ₂	1 hr	7 5 ^c	67 6	75 1	655	196
	3 hr	3 1 ^c	67 6 ^d	70 7	—	1300
	24-hr	0 5 ^c	15 8	16 3	105	—
CO	1 hr	<u>849.0 252^a</u>	3 250	<u>4,099 3,502</u>	23 000	40 000
	8 hr	<u>692.7 195^a</u>	2 433	<u>3,126 2,628</u>	10,000	10 000
PM ₁₀	24 hr ^e	<u>2.2 1.8^a</u>	52	<u>54.2 53 8</u>	50	150
	Annual	0 4	25 6	26 0	20	—
PM _{2.5}	24 hr	<u>2.2 1.8^a</u>	30 ^e	<u>32.2 31 8</u>	—	35
	Annual	0 4	12 8	13 2	12	12

^a Units 9 11 and 12 in commissioning Units 5 and 7 in startup No auxiliary boiler operation assumed see text

^b Reported impacts reflect startup conditions

^c Maximum impacts occur under shoreline fumigation conditions

^d CARB no longer publishes 3 hour average SO₂ concentrations so 1 hour average background is used as conservative estimate of 3 hour average background

^e Background concentration reflects 3 year average of the 98th percentile values based on form of standard See 3 1 28

Commissioning Modeling

BACKGROUND

The PTA includes commissioning emissions in Table 3 1E 2, but the annual impacts during the commissioning year are missing from the impacts tables. The annual emissions of CO, NOx and PM10 during the commissioning year estimated in Table 3 1E 2 are higher than those during a non-commissioning year estimated in Table 3 1A-19. Annual impacts during the commissioning year are expected to be higher than those during a normal operation year, which may trigger the need for additional mitigation measures. Due to the complexity of the commissioning procedures for new combined cycle turbine designs, the El Segundo Energy Center had to request a variance from SCAQMD to extend the commissioning period. Staff would like to know if the commissioning hours estimated in Table 3 1E-2 (415 hours for the GE turbine and 121 hours for each Trent turbine) would be sufficient for these proposed turbines. Staff needs to evaluate the commissioning annual impacts based on conservative estimates of commissioning hours and determine compliance with the corresponding ambient air quality standards.

DATA REQUEST

- 40 Please provide air quality modeling for the annual impacts during the commissioning phase based on conservative estimates of commissioning hours and determine compliance with the annual ambient air quality standards.

Response The commissioning schedule has been revised based, in part, on the Applicant's recent experience commissioning Units 5 and 7. Based on that experience and consultation with the equipment manufacturers, Applicant has increased the initial commissioning period for the GE Turbine to 800 operating hours, and the initial commissioning period for the Trents to 206 operating hours each. (See Tables 3 1-15R, 3 1B 6R, 3 1E-1R, 3 1E-2R, 3 1E-3R, 3 1E-4R, 3 1E-5R, 3 1G-1R, 3 1G-2R)

The impact analysis for commissioning activities has been revised to reflect the new schedule.

Annual impacts in the commissioning year have been evaluated for all pollutants for which commissioning year emissions exceed non-commissioning emissions, and for which there is an annual emission standard (i.e., NO₂, PM₁₀, and PM_{2.5}).

Table 3 1B-6R, which was included in Data Response 1, shows that the maximum hourly emission rate for NOx and CO will be lower under the new commissioning schedule than previously reported. As a result, worst case impacts for those pollutants will also be lower, as shown in Tables 3 1-23R and 3 1-28R.

The conclusions in the PTA regarding commissioning emissions are therefore not affected by the revision in commissioning schedule.

TABLE 3 1 23R (REVISED SEPTEMBER 23 2013)
Modeled Maximum Impacts During Commissioning

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Background Concentration ($\mu\text{g}/\text{m}^3$)	Total Concentration ^a ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	CAAQS ($\mu\text{g}/\text{m}^3$)
NO ₂	1 hr	66.1 <u>53.1</u>	184.2	250.3 <u>151.7</u> ^f	—	339
	Fed 1 hour	^b	129.7 ^d	—	188	—
	Annual	<u>0.5</u>	24.5	<u>25</u>	100	57
SO ₂	1 hr		67.6	—	196	655
	3 hr	^c	41.6	—	1300	—
	24 hr		15.8	—	—	105
CO	1 hr	797.4 <u>165</u>	3.250	4.047 <u>3.415</u>	40.000	23.000
	8 hr	654.9 <u>117</u>	2.433	3.088 <u>2.550</u>	10.000	20.000
PM ₁₀	24 hr	1.8 ^c	52	54 —	150	50
	Annual	^c	25.6	—	—	NA
PM _{2.5}	24 hr	1.8 ^c	30	32 —	35	—
	Annual	^c	12.8	—	NA	NA

^aThe total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

^bNot applicable because commissioning is a once in a lifetime event and is thus not applicable to the form of the 1 hr NO₂ NAAQS.

^cNot applicable because emissions for this pollutant/averaging period are not elevated above normal levels during commissioning.

^dBackground concentration for Federal 1 hour standard is 3 year average of 98th percentile of daily maximum 1 hour average concentration.

^eThe values in this table reflect the revised commissioning schedule dated September 12, 2013.

^fThe total concentration for 1 hour NO₂ is the sum of the modeled impact and the background concentration for that hour in the seasonal daily profile. The seasonal daily profile is comprised of the 3rd highest value of the season for each clock hour. For this reason, the maximum total concentration is less than the maximum measured background concentration.

TABLE 3 1 28R (REVISED SEPTEMBER 23, 2013)
Modeled Maximum Impacts for New Units ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Maximum Impact	Background	Total Impact	State Standard	Federal Standard
NO ₂	1 hr	66.1 53 1 ^a	184 2	250.3 237 3	339	—
	98 th percentile	23 1 ^c	109 6 ^c	120 7 ^f	—	188
	Annual	0 5	24 5	25 0	57	100
SO ₂	1 hr	4 5 ^b	67 6	72 1	655	196
	3 hr	2 3 ^b	67 6 ^d	69 9	—	1300
	24 hr	0 4 ^b	15 8	16 2	105	—
CO	1 hr	797.5 165 4 ^a	3 250	4.048 3,415	23 000	40 000
	8 hr	654.9 117 3 ^a	2 433	3.088 2,550	10 000	10 000
PM ₁₀	24 hr ^e	1.8 1.1 ^a	52	53.8	50	150
	Annual	0 3	25 6	25 9	20	—
PM _{2.5}	24 hr	1.8 1.1 ^a	30 ^e	31.8	—	35
	Annual	0 3	12 8	13 1	12	12 0

^aMaximum impacts occur under commissioning conditions

^bMaximum impacts occur under fumigation conditions

^cMaximum impacts occur under startup conditions background value is seasonal hour of day See text

^dCARB no longer publishes 3 hour average SO₂ concentrations so 1 hour average background is used as conservative estimate of 3 hour average background

^eBackground concentration reflects 3 year average of the 98th percentile values based on form of standard See 3 1 28

^fTotal impact is the five year average of the sum of the modeled 98th percentile value for each year and the Seasonal Hour Of Day background (defined as the three year average of the third highest concentrations for each hour of the day and season) For this reason total impact does not equal the sum of the maximum impact and the background

Cumulative Analysis

BACKGROUND

PTA Appendix 3 1H includes a list of nearby sources within 6-mile radius of the project However, the facility owner eliminated all the nearby sources in the cumulative analysis Staff believes the facilities with greater than 5 tons per year (tpy) of emissions of any single criteria pollutant should be included in the cumulative analysis Staff believes emergency engines should not be exempt from cumulative CEQA analysis These sources may affect the ground level concentration gradient that may not be measured by the ambient monitoring stations used to determine background ambient air quality values Staff would like to make sure that the potential air quality impacts from the project with the nearby sources are not cumulatively significant

On July 31, 2013, Sierra Research, on behalf of the facility owner, submitted a cumulative impact analysis for the project to SCAQMD as required by the Prevention of Significant Deterioration (PSD) rules The analysis listed facilities with annual NO_x emissions more than 10 tpy, some of which were not listed in the PTA Appendix 3 1H These facilities include the LADWP Scattergood Generating Station, LA City Dept of Airports, Northrop Grumman Systems Corp, and Hollywood Park Land Co PTA Appendix 3 1H shows the United Airlines Inc and AES Redondo Beach have emissions lower than 5 tpy but the analysis submitted to SCAQMD on July 31, 2013 shows the 2010 NO_x emissions from these two facilities were more than 10 tpy However, most of the facilities listed in the July 31, 2013 analysis except for LADWP Scattergood Generating Station and Chevron were excluded in the dispersion modeling based on the emissions-to-distance (Q/D) screening method Staff believes the ground-level impacts are not only affected by the emission rates and distance but also the stack exhaust parameters and meteorological conditions Instead of the Q/D screening method,

staff would like to have an impact analysis showing that the potential air quality impacts from the project with the nearby sources are not cumulatively significant

On November 20, 2012, AES submitted an Application for Certification (AFC) to the California Energy Commission seeking permission to construct and operate the Redondo Beach Energy Project (RBEP) which would replace the existing Redondo Beach Generating Station units. The AFC indicates the RBEP would emit 121.5 tpy NO_x and 49.7 tpy PM₁₀ and PM_{2.5}, which would be more than past actual emissions. These emissions are reasonably foreseeable and not reflected in the background measurements thus need to be modeled in the cumulative analysis.

The LADWP Scattergood Generating Station is also going through the repowering process. Staff would like to have the detailed information about the potential emissions of the new units at LADWP Scattergood Generating Station. Staff believes the emissions from the new units are reasonably foreseeable and not reflected in the background measurements thus need to be modeled in the cumulative analysis.

DATA REQUEST

56 Please provide a modeling analysis showing that the impacts from the entire El Segundo facility and the nearby facilities with greater than 5 tons per year of emissions of any single criteria pollutant are not cumulatively significant. These nearby facilities may include but not limited to SO CAL GAS CO/PLAYA DEL REY STORAGE FACI (8582), AIR LIQUIDE LARGE INDUSTRIES U S , LP (148236), GARRETT AVN SVCS LLC DBA STANDARD AERO (155828), DIGITAL 2260 EAST EL SEGUNDO, LLC (166388), FIRST CHURCH OF GOD OF LOS ANGELES (168886), T5@ LOS ANGELES, LLC (169168), CHEVRON PRODUCTS CO (800030), LA City Dept of Airports (800335), United Airlines Inc (9755), Northrop Grumman Systems Corp (800409), Hollywood Park Land Co (145829), new units at LADWP Scattergood Generating Station (800075), and new units at AES Redondo Beach (115536)

Response Staff's statement that "most of the facilities listed in the July 31, 2013 analysis except for LADWP Scattergood Generating Station and Chevron were excluded in the dispersion modeling based on the emissions-to-distance (Q/D) screening method" is factually inaccurate. The Q/D analysis was *one factor* in the determination, combining the factors of proximity and size. Other factors included in the screening process were location relative to the impact area, location relative to the ambient monitor, and the operating schedule of the facility.³ Taking all of these factors into account, the modeling staff at the South Coast Air Quality Management District determined that the excluded facilities do not have the potential to affect ambient concentrations in the project impact area.⁴ The AQMD staff will document this determination in its Determination of Compliance.

Based upon the SCAQMD's determination, which was supported by the results of the modeling the much larger, closer sources (i.e., LADWP Scattergood and AES Redondo Beach) that have been included, the other facilities listed in DR 56 were not explicitly included in the modeling analysis submitted on July 31, 2013, rather, they were believed to be accurately captured within the background ambient concentrations.

The modeling analysis submitted with the PTA included the following facilities:

- Chevron Products Company
- New units at LADWP Scattergood Generating Station

³ Sierra Research *Supplemental Impact Analysis for the El Segundo Power Facility Modification Project* (7/31/13) p. 56 TN # 200097

⁴ Telephone call Jillian Baker (SCAQMD) and Steve Hill (Sierra Research) (June 14, 2013)

In response to this Data Request, the Applicant has prepared a new modeling analysis, adding the following units to those previously evaluated

- New units at AES Redondo Beach

As expected, adding the AES Redondo Beach units had no effect on the analysis. There are no receptors where the both the predicted NO₂ concentration exceeded the 1-hour NO₂ NAAQS and the project impact exceeded the interim NO₂ Significant Impact Level during the same hour.

OTHER REVISIONS

Table 3 1-30R corrects a typographical error

TABLE 3 1 30R (REVISED SEPTEMBER 23, 2013)

Comparison of Modeled Maximum Project Impacts with PSD SILS and Preconstruction Monitoring Thresholds ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Maximum Impact	PSD SIL	PSD Preconstruction Monitoring Threshold
NO ₂	1 hr	23.1 25.1*	7.5	n/a
	Annual	0.5	1.0	14
CO	1 hr	109.0	2000	n/a
	8 hr	12.2	500	575

*Reported results reflect startup conditions

DECLARATION OF SERVICE

I, Dee Hutchinson, declare that on September 23, 2013, I served and filed copies of Applicant's Supplemental Responses to Certain Data Requests in Set One (Nos 17, 19, 23, 34, 36, 38, 40 and 56) dated September 23, 2013. The most recent Proof of Service List, which I copied from the web page for this project at <http://www.energy.ca.gov>, is attached to this Declaration.

(Check one)

For service to all other parties and filing with the Docket Unit at the Energy Commission

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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated September 23, 2013


Dee Hutchinson

Proof of Service List
Docket 00-AFC-14C
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