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March 8, 2007

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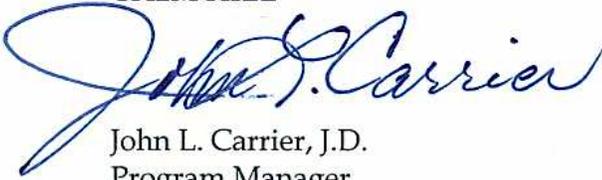
RE: Data Response, Set 1E
Vernon Power Project (06-AFC-4)

On behalf of the City of Vernon, please find attached 12 copies and one original of the Data Responses, Set 1E, in response to Staff's Data Requests dated October 6, 2006. In addition, we are providing five CD-ROMS of the air dispersion modeling files.

Please call me if you have any questions.

Sincerely,

CH2M HILL



John L. Carrier, J.D.
Program Manager

c: Project File
Proof of Service List

**VERNON POWER PLANT
(06-AFC-4)**

DATA RESPONSE, SET 1E
(Responses to Data Request: Air Quality, No. 10)

Submitted by
City of Vernon

March 8, 2007



2485 Natomas Park Drive, Suite 600
Sacramento, California 95833-2937

**VERNON POWER PLANT
(06-AFC-4)
DATA RESPONSES, SET 1E**

Technical Area: Air Quality

CEC Author: Joe Loyer

BACKGROUND: CUMULATIVE ASSESSMENT

The applicant indicates on page 8.1-63 in the AFC that the required cumulative assessment will be completed and submitted in August of 2006.

DATA REQUEST

10. Please provide the cumulative assessment.

Response: As described in Appendix 8.1F of the AFC, the CEC licensing process requires an air quality impact analysis of proposed and new air pollutant emitting equipment located within 6 miles (10 kilometers) of the proposed VPP. The background behind this requirement is that emissions from these new projects are not reflected in current ambient air quality readings measured at nearby ambient air quality monitoring stations. Impacts from projects that could affect background air quality are to be assessed to provide a more complete picture of background air quality without the project proposed in the AFC.

Sources Included in the Cumulative Assessment

To begin the process of identifying potential sources to incorporate into the cumulative air quality analysis, the Applicant contacted the South Coast Air Quality Management District (SCAQMD) and provided a list of zip codes within 6 miles of the project site. In consultation with the CEC staff, Applicant narrowed this list to proposed new or modified sources with anticipated emissions increases that would not be reflected in measured ambient background levels. This includes 33 sources at 14 facilities, identified in Table AQ10 -1. Details for each of the sources included in the modeling are presented in the following section.

**VERNON POWER PLANT
(06-AFC-4)
DATA RESPONSES, SET 1E**

TABLE AQ10-1

Sources Included in the Cumulative Air Impact Analysis

Facility ID	SIC Code	Facility Name	Address	City	Zip	Application Number	Description
25087	3471	AAA PLATING & INSPECTION, INC	410&424 DIXON ST	COMPTON	90222	441210	OVEN, COOKING OR CURING
148107	2673	GREAT AMERICIAN PACKAGING INC	4361 SOTO ST	VERNON	90058	457208	AFTERBURNER - HOT ROCK BED TYPE
16978	2021	CLOUGHERTY PACKING CO, FARMER JOHN MEATS	3049 E VERNON AVE	VERNON	90058-1882	456497	BOILER (>20-50 MMBTU/HR) NAT GAS ONLY
16978	2021	CLOUGHERTY PACKING CO, FARMER JOHN MEATS	3049 E VERNON AVE	VERNON	90058-1882	456493	AFTERBURNER - DIRECT FLAME
16978	2021	CLOUGHERTY PACKING CO, FARMER JOHN MEATS	3049 E VERNON AVE	VERNON	90058-1882	457105	BOILER (>20-50 MMBTU/HR) NAT GAS ONLY
1629	8211	LA UNI SCH DIST, MANN MIDDLE SCHOOL	7001 S SAINT ANDREWS PL	LOS ANGELES	90047-1866	456559	I C E (50-500 HP) EM ELEC GEN-DIESEL
71069	7219	GARMENT INDUSTRY LAUNDRY INC.	710 W 58TH ST	LOS ANGELES	90037-4034	446880	BOILER (5-20 MMBTU/HR) NAT GAS ONLY
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452799	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452798	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452797	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452795	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452794	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452802	BOILER (>20-50 MMBTU/HR) COMB GAS-LPG

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TABLE AQ10-1
Sources Included in the Cumulative Air Impact Analysis

Facility ID	SIC Code	Facility Name	Address	City	Zip	Application Number	Description
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452796	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452805	BOILER (>20-50 MMBTU/HR) COMB GAS-LPG
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452803	BOILER (>20-50 MMBTU/HR) COMB GAS-LPG
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452804	BOILER (>20-50 MMBTU/HR) COMB GAS-LPG
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452800	I C E (>500 HP) EM ELEC GEN DIESEL
20197	8060	LAC/USC MEDICAL CENTER	1200 N STATE ST	LOS ANGELES	90033-1084	452801	BOILER (>20-50 MMBTU/HR) COMB GAS-LPG
135790	9999	GWS WHOLESALE NURSERY	10120 MILLER WAY	SOUTH GATE	90280	451171	I C E (50-500 HP) N-EM PORT N-RENT DIESE
124570		FISHERMAN'S PRIDE PROCESS.,NEPTUNE FOODS	4510 S ALAMEDA ST	VERNON	90058	417695	HEATER/FURNACE (<5 MMBTU/HR) NAT GAS
49448	2086	COCA-COLA BOTTLING CO OF LA	1334 S CENTRAL AVE	LOS ANGELES	90021-2344	446478	I C E (50-500 HP) EM FIRE FGHT-DIESEL
60812	2099	OVERHILL FARMS INC	3055 E 44TH ST	VERNON	90058-2427	456905	BOILER (5-20 MMBTU/HR) NAT GAS ONLY P/P
61975	9199	LA CITY, BUREAU OF SANITATION	3716 UNION PACIFIC AVE	LOS ANGELES	90023-3229	439655	I C E (>500 HP) EM ELEC GEN DIESEL
81710	8220	UNIV OF SO CAL	3651 WATT WAY	LOS ANGELES	90089-0021	451950	I C E (>500 HP) EM ELEC GEN DIESEL
81710	8220	UNIV OF SO CAL	3651 WATT WAY	LOS ANGELES	90089-0021	451951	I C E (>500 HP) EM ELEC GEN DIESEL

**VERNON POWER PLANT
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DATA RESPONSES, SET 1E**

TABLE AQ10-1
Sources Included in the Cumulative Air Impact Analysis

Facility ID	SIC Code	Facility Name	Address	City	Zip	Application Number	Description
81710	8220	UNIV OF SO CAL	3651 WATT WAY	LOS ANGELES	90089-0021	445944	BOILER (5-20 MMBTU/HR) NAT GAS ONLY
81710	8220	UNIV OF SO CAL	3651 WATT WAY	LOS ANGELES	90089-0021	451952	I C E (>500 HP) EM ELEC GEN DIESEL
81710	8220	UNIV OF SO CAL	3651 WATT WAY	LOS ANGELES	90089-0021	445943	BOILER (5-20 MMBTU/HR) NAT GAS ONLY
81710	8220	UNIV OF SO CAL	3651 WATT WAY	LOS ANGELES	90089-0021	457249	I C E (50-500 HP) EM ELEC GEN-DIESEL
130221	9999	ROYAL PRINTEX INC	6270 S BOYLE AVE	VERNON	90058	455752	BOILER (5-20 MMBTU/HR) NAT GAS ONLY C/G
22265	4131	LA CO., METROPOLITAN TRANS AUTHORITY #2	720 E 15TH ST	LOS ANGELES	90021	455043	I C E (50-500 HP) EM ELEC GEN-DIESEL
22265	4131	LA CO., METROPOLITAN TRANS AUTHORITY #2	720 E 15TH ST	LOS ANGELES	90021	455044	I C E (50-500 HP) EM ELEC GEN-DIESEL

VERNON POWER PLANT (06-AFC-4) DATA RESPONSES, SET 1E

Modeling Parameters

A formal data request was submitted to the SCAQMD to compile the modeling parameters for the 33 remaining sources. For emission and exhaust parameters that were not provided by the SCAQMD, emission and stack parameter data were gathered in the following order of preference:

- Manufacturer Data – Source information acquired from the manufacturer’s website or through contact with equipment vendors;
- Regulatory Limits – Emissions estimates based upon SCAQMD or CARB regulatory documents;
- Engineering Estimates – Emissions rates and source parameters based on AP-42 emission factors and general industry standards.

Table AQ10-2 provides a summary of modeled emission rates and source parameters.

**VERNON POWER PLANT
(06-AFC-4)
DATA RESPONSES, SET 1E**

TABLE AQ10-2
Summary of Modeled Emission Rates and Source Parameters

Source Type	Application Number/ Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rates (g/s) ^a					
										1-hr NOx	1-hr CO	8-hr CO	24-hr PM ₁₀	Annual NOx	Annual PM ₁₀
Boilers															
	446880	Garment Industry 20 MMBtu Boiler	381240	3761549	45.4	10.67	422	12.91	0.46	3.63E-02	9.31E-02	9.31E-02	1.88E-02	3.63E-02	1.88E-02
	456905	Overhill Farms 20 MMBtu Boiler	387869	3763060	57.9	10.67	422	12.91	0.46	3.63E-02	9.31E-02	9.31E-02	1.88E-02	3.63E-02	1.88E-02
	445943 - 44	USC 5.7 MMBtu Boiler	381076	3764948	53.9	10.67	422	3.68	0.46	1.03E-02	2.65E-02	2.65E-02	5.35E-03	1.03E-02	5.35E-03
	455752	Royal Printex 20 MMBtu Boiler	388002	3760921	51.1	10.67	422	12.91	0.46	3.63E-02	9.31E-02	9.31E-02	1.88E-02	3.63E-02	1.88E-02
	417695	Fishermans 3 MMBtu Boiler	385604	3762977	60.0	10.67	422	1.94	0.46	1.36E-02	1.40E-02	1.40E-02	2.82E-03	1.36E-02	2.82E-03
	456497	Clougherty 50 MMBtu Boiler	387357	3763223	61.0	10.67	422	32.27	0.46	6.80E-02	2.33E-01	2.33E-01	4.69E-02	6.80E-02	4.69E-02
	457105	Clougherty 50 MMBtu Boiler	387357	3763223	61.0	10.67	422	32.27	0.46	6.80E-02	2.33E-01	2.33E-01	4.69E-02	6.80E-02	4.69E-02
	452801 - 05	LAC USC Med Center 50 MMBtu Boiler	388363	3769111	99.5	10.67	422	32.27	0.46	6.80E-02	2.33E-01	2.33E-01	4.69E-02	6.80E-02	4.69E-02
Ovens/ Furnaces															
	441210	AAA Plating 1.6 MMBtu ^b	386989	3753942	25.3	6.4008	450	9.31	0.3048	2.32E-03	5.96E-03	5.96E-03	7.53E-05	1.10E-03	5.36E-05
	456493	Clougherty Direct Flame Afterburner	387357	3763223	61.0	6.4	1033	56.92	0.3048	9.07E-03	2.33E-02	2.33E-02	4.69E-03	9.07E-03	4.69E-03
	457208	Great American Hot Rock AB 2.6 MMBtu	387351	3763123	61.0	6.4	1033	56.92	0.3048	4.72E-03	1.21E-02	1.21E-02	2.44E-03	4.72E-03	2.44E-03
Diesel internal combustion engine (ICE)															
	451171	GWS Nursery 500 bhp ICE	391797	3755799	32.9	2.84	758	58.99	0.1524	5.56E-01	4.86E-01	4.86E-01	2.08E-02	5.56E-01	2.08E-02
Emergency Diesel ICE^c															
	457249	USC 470 MMBtu Emergency ICE	381076	3764948	53.9	2.84	800	58.99	0.1524	6.27E-01	4.57E-01	4.57E-01	1.96E-02	1.43E-02	4.47E-04
	455043	LA County 314 bhp Emergency ICE	384123	3766028	68.9	2.22	781	96.81	0.1016	4.19E-01	3.05E-01	3.05E-01	1.31E-02	9.56E-03	2.99E-04

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(06-AFC-4)
DATA RESPONSES, SET 1E**

TABLE AQ10-2
Summary of Modeled Emission Rates and Source Parameters

Source Type	Application Number/ Source ID	Source Description	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Emission Rates (g/s) ^a					
										1-hr NOx	1-hr CO	8-hr CO	24-hr PM ₁₀	Annual NOx	Annual PM10
	455044	LA County 282 bhp Emergency ICE	384123	3766028	68.9	2.22	781	96.81	0.1016	3.76E-01	2.74E-01	2.74E-01	1.76E-03	8.58E-03	4.02E-05
	451950 - 52	USC 2847 bhp Emergency ICE	381076	3764948	53.9	2.87	764	71.91	0.2032	5.46E+00	3.42E-01	3.42E-01	4.89E-02	1.25E-01	1.12E-03
	439655	LA City 519 bhp Emergency ICE	389587	3764424	57.0	2.84	763	97.03	0.1524	1.01E+00	3.13E-01	3.13E-01	1.10E-01	2.30E-02	2.50E-03
	446478	Coca Cola 210 bhp Fire Pump ICE	384949	3765852	71.0	2.22	798	79.11	0.1016	2.81E-01	3.40E-02	3.40E-02	7.56E-03	6.42E-03	1.73E-04
	452794 – 800 ^d	LAC USC 2936 bhp ICE	388363	3769111	99.5	2.87	723	70.91	0.3556	5.63E+00	3.53E-01	3.53E-01	4.66E-02	1.28E-01	1.06E-03
	456559	LA School District 314 bhp ICE	378863	3760084	47.5	2.22	781	96.81	0.1016	4.19E-01	3.05E-01	3.05E-01	1.96E-03	9.56E-03	4.48E-05

Assumptions:

^a Emission rates assume continuous operation (8,760 hrs/year) unless otherwise noted.

^b Permit indicates maximum operating schedule of 16 hrs/day, 5 days/wk 52 wks/yr at 80% load.

^c Annual emission rates based on maximum emergency operation (200 hrs/yr).

^d Based on information provided by the LAC/USC Medical Center, only two diesel generators would be operated per hour for a total of 30 minutes each. Therefore, the 1, 3, 8, and 24 hour dispersion modeling analysis only included emissions from one of the seven engines.

VERNON POWER PLANT (06-AFC-4) DATA RESPONSES, SET 1E

Cumulative Air Quality Impact Analysis

The cumulative air quality impact analysis was performed using the model settings presented in Section 8.1 (Air Quality) of the AFC. Receptors were placed at the North Main and Lynwood ambient air quality monitoring stations to evaluate the cumulative impact at the background monitoring stations. The following assumptions were used in the analysis:

- All sources at a facility were modeled at the same point (e.g., in the case of the LAC/USC Medical Center, this included seven 2,936 bhp diesel generators and five, 50 MMBTU/hr boilers).
- All emergency diesel generators were assumed to be running simultaneously with the exception of short-term emissions for the LAC/USC Medical Center. Based on information provided by the LAC/USC Medical Center, only 2 diesel generators would be operated per hour for a total of 30 minutes each.
- Facility fence line locations were not taken into account during the modeling analysis.
- Source parameter data (i.e., stack height, diameter, and temperature) that were not included in the SCAQMD permit applications were estimated as described above.
- Unless explicitly stated in the SCAQMD permit applications, it was assumed emissions from all sources were uncontrolled.
- Annual emissions assumed 8,760 hours of operation for each unit with the exception of the emergency diesel internal combustion engines (ICEs), which were assumed to operate 200 hours per year, and those sources are noted in Table AQ10-2.
- Assumed all combustion sources were operated at 100 percent load for each hour unless otherwise noted in Table AQ10-2.

The results of the analysis are presented below.

Cumulative Assessment Results

The total cumulative impacts presented in Table AQ10-3 represent the maximum predicted impacts at the nearby monitoring stations (Lynwood or North Main) plus the operational modeling results presented in Table 8.1-27 of the AFC. In addition to the assumption listed in the previous section, the values are conservative based on the following:

- VPP impacts include start-up emissions
- The predicted cumulative impacts are based on the maximum impact predicted at either the Lynwood or the North Main monitoring stations

VERNON POWER PLANT (06-AFC-4) DATA RESPONSES, SET 1E

- Results add the maximum predicted VPP air quality impact at any location to the total ambient air quality background concentrations as presented in Table 8.1-27 of the AFC.

Five compact diskettes containing the air dispersion modeling files will be provided to CEC staff. Compact diskettes of the air dispersion modeling files will also be provided to others upon request.

TABLE AQ10-3

Cumulative Impacts Analysis—Maximum Modeled Impacts Compared to the Ambient Air Quality Standards

Pollutant	Averaging Time	Predicted Cumulative Impact ($\mu\text{g}/\text{m}^3$) ^a	Background ($\mu\text{g}/\text{m}^3$) ^b	VPP Impact ($\mu\text{g}/\text{m}^3$) ^c	Total Cumulative Impact ($\mu\text{g}/\text{m}^3$)	State Standard ($\mu\text{g}/\text{m}^3$)	Federal Standard ($\mu\text{g}/\text{m}^3$)
NO ₂	1-hour	110 ^d	244.6	53.1	407.7	470	-
	Annual	0.1 ^d	58.7	0.7	59.5	-	100
CO	1-hour	30	13,742	332	14,104	23,000	40,000
	8-hour	8	8,360	20	8,388	10,000	10,000
PM ₁₀	24-hour	0.5	81.0	2.4	83.9	50	150
	Annual	0.04	34.6	0.6	35.2	20	-
PM _{2.5} ^e	24-hour	0.5	55.8	2.4	58.7	-	35
	Annual	0.04	20.2	0.6	20.8	12	15

^a The predicted concentration represents the highest concentration predicted for the cumulative sources at either the Lynwood or North Main Monitoring Station locations. This concentration does not include the VPP sources.

^b Background concentrations as reported in Table 8.1-21 of the AFC.

^c Maximum predicted concentrations for the VPP project as reported in Table 8.1-27 of the AFC.

^d The 1-hour and annual NO_x cumulative concentrations assume 100% conversion of NO_x to NO₂.

^e Assumed all particulate matter less than 10 micron (i.e. PM₁₀) is also less than 2.5 micron (i.e. PM_{2.5}).