

**ATTACHMENT 4.3-A: PROPOSED PROJECT EMISSIONS CALCULATION
METHODOLOGY**

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1.0 INTRODUCTION

The computer model URBEMIS version 9.2.4 (URBEMIS) was used to simulate the potential criteria air pollutant and greenhouse gas emissions from the construction, operation, and maintenance of the Proposed Project. URBEMIS—which stands for "Urban Emissions Model"—was originally developed by the California Air Resources Board as a tool to assist with estimating the potential air quality impacts from projects during the California Environmental Quality Act process.

URBEMIS was used to generate estimates of construction and operational emissions from the Proposed Project for various pollutants, including inhalable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide (CO), volatile organic compounds (VOC), sulfur oxides (SO_x), oxides of nitrogen (NO_x), and carbon dioxide (CO₂). URBEMIS was also used to evaluate the effectiveness of applicant-proposed measures on emission rates.

The resulting emissions from the URBEMIS simulations were also used in conjunction with the methods from the California Climate Action Registry General Reporting Protocol (CCAR GRP) version 3.1 and data from the California Statewide Greenhouse Gas (GHG) Inventory to develop estimated methane and nitrous oxide emissions.

1.1 URBEMIS MODELING

1.1.0 Modeling Input

Information related to the scope, physical size, and duration of each phase of the Proposed Project was obtained from San Diego Gas and Electric Company (SDG&E) and used to characterize the five distinct components. Data was also provided for the type and quantity of off-road equipment expected to be used during construction of the East County (ECO) Substation and rebuild of the Boulevard Substation. This information is summarized in Attachment 3-B: Typical Construction Equipment. Helicopter emissions were also estimated using URBEMIS. Helicopters were simulated as "other general industrial equipment."

1.1.1 Construction Equipment Use in Imperial County

Approximately 10,000 truck trips will be required to supply the 140,000 cubic yards of fill material to construct and rebuild the substations. In addition, construction of the ECO Substation will require approximately 30 million gallons of water. If drilling wells in the vicinity of the ECO Substation proves to be unsuccessful, then approximately 3,000 truck trips will be required to import this water. In order to simulate the worst-case scenario, 13,000 truck trips were added to the URBEMIS model. These trucks were assumed to make an 80-mile roundtrip that originated and terminated in the City of El Centro in Imperial County. Interstate 8 will provide the most direct access route, with approximately 90 percent of the roundtrip distance occurring in Imperial County and the remainder occurring in San Diego County. As a result, 90 percent of the air emissions from these truck trips were analyzed using the Imperial County Air Pollution

Control District (APCD) significance criteria. The remaining 10 percent were analyzed using guidance from the San Diego APCD. This information is summarized in Table 1: URBEMIS Input Parameters – On-Road Truck Travel.

Table 1: URBEMIS Input Parameters – On-Road Truck Travel

Phase	Duration	On-Road Truck Travel (miles per day)	
		San Diego County	Imperial County
ECO Substation			
Water Delivery	June 1, 2010 to September 30, 2010	--	1,260
Site Grading	February 1, 2010 to September 30, 2010	140	1,260
	October 1, 2010 to May 31, 2011	480	4,320
Boulevard Substation Rebuild			
Site Grading	May 1, 2010 to June 30, 2010	931	--

1.1.2 Modeling Output

Two separate modeling runs—one for the annual emissions and a second for the summer season—were created for each of the Proposed Project’s components. The truck trip emissions occurring in Imperial County were modeled separately. The output files from all of the URBEMIS simulations have been included at the end of this document.

1.2 SUPPLEMENTAL CALCULATIONS

1.2.0 Generator Use

Up to two propane generators will be used during construction of the ECO Substation to provide power to temporary work areas before the 12 kilovolt temporary distribution tap can be installed. Two diesel-powered generators will be installed at the ECO Substation and one propane-powered generator will be installed at the White Star Communication Facility for emergency power during operation of the facilities. The criteria air pollutant (CAP) emissions calculations from the use of these generators during construction and operation are provided in Table 2: CAP Emissions from Generator Use – Construction and Table 3: CAP Emissions from Generator Use – Operation.

Table 2: CAP Emissions from Generator Use – Construction

Constant	Value	Units	Source
Btu per standard cubic foot	1020	--	AP-42; Section 3.2, Natural Gas-Fired Reciprocating Engines
Daily hours of operation	24	hours	
Number of Generators	2	--	

Equipment	Pollutant	Emission Factor (lb/MMBtu)	Fuel Use (ft ³ /hour)	Hourly Emissions (lb/hr)	Daily Emissions (lbs/day)
50 kW Generators (Calculations are for 2)	CO	0.557	230	0.26	6.27
	NO _x	0.847	230	0.40	9.54
	PM ₁₀ *	0.009987	230	0.00	0.11
	TOC	1.47	230	0.69	16.55
	SO ₂	0.000588	230	0.00	0.01
	CO ₂	110	230	51.61	1,238.69

Emission factors from AP-42; Section 3.2, Natural Gas-Fired Reciprocating Engines

*Includes filterable and condensable emissions

Table 3: CAP Emissions from Generator Use – Operation

Constant	Value	Units	Source
Btu per gallon of Diesel	13,7000	--	AP-42; Appendix A
Annual hours of operation	50	--	--

Equipment	Pollutant	Emission Factor (lb/MMBtu)	Fuel Use (gal/hour)	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)
Kohler 200REOZJD	CO	0.95	15.3	1.99	0.05
	NO _x	4.41	15.3	9.24	0.23
	PM ₁₀ *	0.31	15.3	0.65	0.02
	TOC	0.36	15.3	0.75	0.02
	SO ₂	0.29	15.3	0.61	0.02
	CO ₂	164	15.3	343.76	8.59
Kohler 100REOZJD	CO	0.95	8.2	1.07	0.03
	NO _x	4.41	8.2	4.95	0.12
	PM ₁₀ *	0.31	8.2	0.35	0.01
	TOC	0.36	8.2	0.40	0.01
	SO ₂	0.29	8.2	0.33	0.01
	CO ₂	164	8.2	184.24	4.61

Emission Factors from AP-42; Section 3.3, Gas and Industrial Engines

*Includes filterable and condensable emissions

1.2.1 GHG Calculations

GHG emissions were calculated for the following sources:

- On-road and off-road vehicle and equipment used during construction, operation, and maintenance;
- Generators used during construction, operation, and maintenance;
- Auxiliary power consumption at the ECO Substation, Boulevard Substation, and White Star Communication Facility; and
- Fugitive sulfur hexafluoride (SF₆)-containing equipment located at the ECO and Boulevard substations.

These GHG calculations have been provided at the end of this attachment.

URBEMIS SIMULATION RESULTS

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AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated)

ROG NOx CO SO2 PM10 PM2.5 CO2

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

ROG NOx CO SO2 PM10 PM2.5 CO2

TOTALS (tons/year, unmitigated) 1.12 3.92 13.11 0.01 0.17 0.13 1,274.51

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

ROG NOx CO SO2 PM10 PM2.5 CO2

TOTALS (tons/year, unmitigated) 1.12 3.92 13.11 0.01 0.17 0.13 1,274.51

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG NOx CO SO2 PM10 Dust PM10 Exhaust PM10 PM2.5 Dust PM2.5 Exhaust PM2.5 CO2

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2011		2.66	19.93	25.19	0.02	3.42	0.88	4.30	0.73	0.81	1.53	4,191.91
	Fine Grading 10/01/2010-01/31/2011	0.08	0.71	0.33	0.00	3.33	0.04	3.37	0.70	0.04	0.73	84.53
	Fine Grading Dust	0.00	0.00	0.00	0.00	3.33	0.00	3.33	0.70	0.00	0.70	0.00
	Fine Grading Off Road Diesel	0.07	0.54	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	55.43
	Fine Grading On Road Diesel	0.01	0.16	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.12
	Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.99
	Trenching 11/01/2010-06/30/2011	0.71	5.92	2.69	0.00	0.00	0.27	0.28	0.00	0.25	0.25	813.68
	Trenching Off Road Diesel	0.70	5.90	2.34	0.00	0.00	0.27	0.27	0.00	0.25	0.25	778.05
	Trenching Worker Trips	0.01	0.02	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.64
	Building 02/01/2011-09/30/2011	1.78	12.00	21.72	0.02	0.09	0.52	0.61	0.03	0.47	0.50	3,092.71
	Building Off Road Diesel	1.22	11.05	4.23	0.00	0.00	0.47	0.47	0.00	0.43	0.43	1,338.85
	Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Building Worker Trips	0.56	0.95	17.50	0.02	0.09	0.05	0.13	0.03	0.04	0.07	1,753.86
	Mass Grading 02/01/2011-09/30/2011	0.09	1.31	0.45	0.00	0.01	0.05	0.06	0.00	0.05	0.05	200.98
	Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mass Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mass Grading On Road Diesel	0.09	1.31	0.45	0.00	0.01	0.05	0.06	0.00	0.05	0.05	200.98
	Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012		0.31	2.59	4.75	0.00	0.02	0.08	0.10	0.01	0.07	0.08	740.77
	Building 03/01/2012-04/30/2012	0.31	2.59	4.75	0.00	0.02	0.08	0.10	0.01	0.07	0.08	740.77
	Building Off Road Diesel	0.19	2.38	0.70	0.00	0.00	0.07	0.07	0.00	0.06	0.06	302.16
	Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Building Worker Trips	0.13	0.22	4.05	0.00	0.02	0.01	0.03	0.01	0.01	0.02	438.61

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Phase Assumptions

Phase: Fine Grading 10/1/2010 - 1/31/2011 - Final grading of site (12.8 acres/day maximum)

Total Acres Disturbed: 90.2

Maximum Daily Acreage Disturbed: 12.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 480

Off-Road Equipment:

3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2.7 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 6 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

3 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

3 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day

Phase: Mass Grading 6/1/2010 - 9/30/2010 - Clearing and grading (12.8 acres/day maximum)

Total Acres Disturbed: 90.2

Maximum Daily Acreage Disturbed: 12.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 480

Off-Road Equipment:

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 6 hours per day

2 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day

3 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

5 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5.5 hours per day

3 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day

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Phase: Mass Grading 2/1/2011 - 9/30/2011 - Haul truck trips separate from grading (10,000 trips over 8 months, 80 miles R/T)

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 480

Off-Road Equipment:

Phase: Trenching 11/1/2010 - 6/30/2011 - Prep for Foundation, below grade construction

Off-Road Equipment:

2 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day

11 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2.9 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

2 Trenchers (63 hp) operating at a 0.75 load factor for 7 hours per day

Phase: Building Construction 2/1/2011 - 9/30/2011 - Construction of 138 kV, 230 kV, and 500 kV yards, above grade construction

Off-Road Equipment:

6 Cranes (399 hp) operating at a 0.43 load factor for 5 hours per day

4 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 5.6 hours per day

5 Other Equipment (190 hp) operating at a 0.62 load factor for 6 hours per day

2 Plate Compactors (8 hp) operating at a 0.43 load factor for 6 hours per day

2 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day

Phase: Building Construction 3/1/2012 - 4/30/2012 - Testing and commissioning

Off-Road Equipment:

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 4 hours per day

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2011		2.66	19.93	25.19	0.02	1.27	0.88	2.15	0.28	0.81	1.09	4,191.91
Fine Grading 10/01/2010-01/31/2011		0.08	0.71	0.33	0.00	1.18	0.04	1.22	0.25	0.04	0.28	84.53
Fine Grading Dust		0.00	0.00	0.00	0.00	1.18	0.00	1.18	0.25	0.00	0.25	0.00
Fine Grading Off Road Diesel		0.07	0.54	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	55.43
Fine Grading On Road Diesel		0.01	0.16	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	25.12
Fine Grading Worker Trips		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.99
Trenching 11/01/2010-06/30/2011		0.71	5.92	2.69	0.00	0.00	0.27	0.28	0.00	0.25	0.25	813.68
Trenching Off Road Diesel		0.70	5.90	2.34	0.00	0.00	0.27	0.27	0.00	0.25	0.25	778.05
Trenching Worker Trips		0.01	0.02	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.64
Building 02/01/2011-09/30/2011		1.78	12.00	21.72	0.02	0.09	0.52	0.61	0.03	0.47	0.50	3,092.71
Building Off Road Diesel		1.22	11.05	4.23	0.00	0.00	0.47	0.47	0.00	0.43	0.43	1,338.85
Building Vendor Trips		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips		0.56	0.95	17.50	0.02	0.09	0.05	0.13	0.03	0.04	0.07	1,753.86
Mass Grading 02/01/2011-09/30/2011		0.09	1.31	0.45	0.00	0.01	0.05	0.06	0.00	0.05	0.05	200.98
Mass Grading Dust		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading On Road Diesel		0.09	1.31	0.45	0.00	0.01	0.05	0.06	0.00	0.05	0.05	200.98
Mass Grading Worker Trips		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012		0.31	2.59	4.75	0.00	0.02	0.08	0.10	0.01	0.07	0.08	740.77
Building 03/01/2012-04/30/2012		0.31	2.59	4.75	0.00	0.02	0.08	0.10	0.01	0.07	0.08	740.77
Building Off Road Diesel		0.19	2.38	0.70	0.00	0.00	0.07	0.07	0.00	0.06	0.06	302.16
Building Vendor Trips		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips		0.13	0.22	4.05	0.00	0.02	0.01	0.03	0.01	0.01	0.02	438.61

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 10/1/2010 - 1/31/2011 - Final grading of site (12.8 acres/day maximum)

For Soil Stabilizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Mass Grading 6/1/2010 - 9/30/2010 - Clearing and grading (12.8 acres/day maximum)

For Soil Stabilizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscap							
Consumer Products							
Architectural Coatings							
TOTALS (tons/year, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated									
Source	ROG	NOX	CO	SO2	PM10	PM25	CO2		
General heavy industry	1.12	3.92	13.11	0.01	0.17	0.13	1,274.51		
TOTALS (tons/year, unmitigated)	1.12	3.92	13.11	0.01	0.17	0.13	1,274.51		

Operational Settings:

Does not include correction for passby trips
 Does not include double counting adjustment for internal trips
 Analysis Year: 2009 Season: Annual
 Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry	6.75		acres	90.20	608.85	5,653.17
					608.85	5,653.17

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	1.6	98.0	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	71.4	28.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry

90.0

5.0

5.0

Operational Changes to Defaults

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: B:\Project\SDGE\urbemis_update\8-04-09 SDGE ECO.urb924

Project Name: East County substation

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2010 TOTALS (lbs/day unmitigated)	22.14	199.20	97.59	0.03	256.11	8.84	264.94	53.50	8.14	61.63	19,730.76
2010 TOTALS (lbs/day mitigated)	22.14	199.20	97.59	0.03	90.72	8.54	99.25	18.96	7.85	26.81	19,730.76
2011 TOTALS (lbs/day unmitigated)	27.11	204.32	247.95	0.19	256.11	9.01	262.59	53.50	8.24	59.46	42,169.26
2011 TOTALS (lbs/day mitigated)	27.11	204.32	247.95	0.19	90.72	9.01	97.20	18.96	8.24	24.92	42,169.26
2012 TOTALS (lbs/day unmitigated)	12.06	99.80	182.75	0.16	0.82	3.07	3.89	0.30	2.77	3.07	28,491.10
2012 TOTALS (lbs/day mitigated)	12.06	99.80	182.75	0.16	0.82	3.07	3.89	0.30	2.77	3.07	28,491.10
AREA SOURCE EMISSION ESTIMATES											
TOTALS (lbs/day, unmitigated)											
	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>				
OPERATIONAL (VEHICLE) EMISSION ESTIMATES											
TOTALS (lbs/day, unmitigated)											
	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>				
SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES											
TOTALS (lbs/day, unmitigated)	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>				
TOTALS (lbs/day, unmitigated)	6.11	19.47	70.93	0.07	0.95	0.71	7,201.53				
TOTALS (lbs/day, unmitigated)	6.11	19.47	70.93	0.07	0.95	0.71	7,201.53				

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 6/1/2010-9/30/2010 Active Days: 105	<u>22.14</u>	<u>199.20</u>	<u>97.59</u>	0.02	256.10	<u>8.84</u>	<u>264.94</u>	53.50	<u>8.14</u>	<u>61.63</u>	<u>19,730.76</u>
Mass Grading 06/01/2010- 09/30/2010	22.14	199.20	97.59	0.02	256.10	8.84	264.94	53.50	8.14	61.63	19,730.76
Mass Grading Dust	0.00	0.00	0.00	0.00	256.00	0.00	256.00	53.46	0.00	53.46	0.00
Mass Grading Off Road Diesel	21.03	184.88	86.56	0.00	0.00	8.30	8.30	0.00	7.63	7.63	17,210.85
Mass Grading On Road Diesel	0.91	13.97	4.71	0.02	0.07	0.53	0.60	0.02	0.49	0.51	1,932.48
Mass Grading Worker Trips	0.21	0.35	6.32	0.01	0.03	0.02	0.04	0.01	0.01	0.02	587.42
Time Slice 10/1/2010-10/30/2010 Active Days: 26	6.93	58.93	26.31	0.02	256.08	3.15	259.24	53.49	2.90	56.39	6,502.47
Fine Grading 10/01/2010- 01/31/2011	6.93	58.93	26.31	0.02	256.08	3.15	259.24	53.49	2.90	56.39	6,502.47
Fine Grading Dust	0.00	0.00	0.00	0.00	256.00	0.00	256.00	53.46	0.00	53.46	0.00
Fine Grading Off Road Diesel	5.91	44.78	18.30	0.00	0.00	2.61	2.61	0.00	2.40	2.40	4,263.50
Fine Grading On Road Diesel	0.91	13.97	4.71	0.02	0.07	0.53	0.60	0.02	0.49	0.51	1,932.48
Fine Grading Worker Trips	0.11	0.18	3.30	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.48

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Time Slice 11/1/2010-12/31/2010	16.73	142.42	62.69	<u>0.03</u>	256.11	7.02	263.12	53.50	6.45	59.95	17,001.47
Active Days: 53											
Fine Grading 10/01/2010-01/31/2011	6.93	58.93	26.31	0.02	256.08	3.15	259.24	53.49	2.90	56.39	6,502.47
Fine Grading Dust	0.00	0.00	0.00	0.00	256.00	0.00	256.00	53.46	0.00	53.46	0.00
Fine Grading Off Road Diesel	5.91	44.78	18.30	0.00	0.00	2.61	2.61	0.00	2.40	2.40	4,263.50
Fine Grading On Road Diesel	0.91	13.97	4.71	0.02	0.07	0.53	0.60	0.02	0.49	0.51	1,932.48
Fine Grading Worker Trips	0.11	0.18	3.30	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.48
Trenching 11/01/2010-06/30/2011	9.81	83.49	36.38	0.00	0.02	3.87	3.89	0.01	3.55	3.56	10,499.01
Trenching Off Road Diesel	9.65	83.22	31.44	0.00	0.00	3.85	3.85	0.00	3.54	3.54	10,039.29
Trenching Worker Trips	0.16	0.27	4.94	0.00	0.02	0.01	0.03	0.01	0.01	0.02	459.72
Time Slice 1/1/2011-1/31/2011	15.66	130.87	59.85	0.03	256.11	6.48	<u>262.59</u>	53.50	5.96	<u>59.46</u>	17,001.72
Active Days: 26											
Fine Grading 10/01/2010-01/31/2011	6.50	54.48	25.08	0.02	256.08	2.94	259.03	53.49	2.71	56.20	6,502.56
Fine Grading Dust	0.00	0.00	0.00	0.00	256.00	0.00	256.00	53.46	0.00	53.46	0.00
Fine Grading Off Road Diesel	5.56	41.73	17.73	0.00	0.00	2.46	2.46	0.00	2.26	2.26	4,263.50
Fine Grading On Road Diesel	0.84	12.58	4.29	0.02	0.07	0.48	0.54	0.02	0.44	0.46	1,932.48
Fine Grading Worker Trips	0.10	0.17	3.06	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.58
Trenching 11/01/2010-06/30/2011	9.16	76.39	34.77	0.00	0.02	3.54	3.56	0.01	3.26	3.26	10,499.16
Trenching Off Road Diesel	9.01	76.15	30.18	0.00	0.00	3.53	3.53	0.00	3.25	3.25	10,039.29
Trenching Worker Trips	0.15	0.25	4.59	0.00	0.02	0.01	0.03	0.01	0.01	0.02	459.86

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Time Slice 3/1/2012-4/30/2012	12.06	99.80	182.75	0.16	0.82	3.07	3.89	0.30	2.77	3.07	28,491.10
Active Days: 52											
Building 03/01/2012-04/30/2012	12.06	99.80	182.75	0.16	0.82	3.07	3.89	0.30	2.77	3.07	28,491.10
Building Off Road Diesel	7.17	91.49	26.91	0.00	0.00	2.62	2.62	0.00	2.41	2.41	11,621.60
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	4.89	8.32	155.85	0.16	0.82	0.45	1.28	0.30	0.36	0.66	16,869.50

Phase Assumptions

Phase: Fine Grading 10/1/2010 - 1/31/2011 - Final grading of site (12.8 acres/day maximum)

Total Acres Disturbed: 90.2

Maximum Daily Acreage Disturbed: 12.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 480

Off-Road Equipment:

3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2.7 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 6 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

3 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

3 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day

Phase: Mass Grading 6/1/2010 - 9/30/2010 - Clearing and grading (12.8 acres/day maximum)

Total Acres Disturbed: 90.2

Maximum Daily Acreage Disturbed: 12.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 480

Off-Road Equipment:

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 6 hours per day

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- 2 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
- 2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day
- 3 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day
- 3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
- 5 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
- 4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5.5 hours per day
- 3 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day

Phase: Mass Grading 2/1/2011 - 9/30/2011 - Haul truck trips separate from grading (10,000 trips over 8 months, 80 miles R/T)

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 480

Off-Road Equipment:

Phase: Trenching 11/1/2010 - 6/30/2011 - Prep for Foundation, below grade construction

Off-Road Equipment:

- 2 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day
- 11 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2.9 hours per day
- 3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day
- 2 Trenchers (63 hp) operating at a 0.75 load factor for 7 hours per day

Phase: Building Construction 2/1/2011 - 9/30/2011 - Construction of 138 kV, 230 kV, and 500 kV yards, above grade construction

Off-Road Equipment:

- 6 Cranes (399 hp) operating at a 0.43 load factor for 5 hours per day
- 4 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 5.6 hours per day
- 5 Other Equipment (190 hp) operating at a 0.62 load factor for 6 hours per day
- 2 Plate Compactors (8 hp) operating at a 0.43 load factor for 6 hours per day

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- 2 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day

Phase: Building Construction 3/1/2012 - 4/30/2012 - Testing and commissioning

Off-Road Equipment:

- 2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 4 hours per day
- 1 Cranes (399 hp) operating at a 0.43 load factor for 5 hours per day
- 1 Generator Sets (670 hp) operating at a 0.74 load factor for 24 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Time Slice	ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
6/1/2010-9/30/2010 Active Days: 105	<u>22.14</u>	<u>199.20</u>	<u>97.59</u>	0.02	90.71	<u>8.54</u>	<u>99.25</u>	18.96	<u>7.85</u>	<u>26.81</u>	<u>19,730.76</u>
Mass Grading 06/01/2010-09/30/2010	22.14	199.20	97.59	0.02	90.71	8.54	99.25	18.96	7.85	26.81	19,730.76
Mass Grading Dust	0.00	0.00	0.00	0.00	90.61	0.00	90.61	18.92	0.00	18.92	0.00
Mass Grading Off Road Diesel	21.03	184.88	86.56	0.00	0.00	7.99	7.99	0.00	7.35	7.35	17,210.85
Mass Grading On Road Diesel	0.91	13.97	4.71	0.02	0.07	0.53	0.60	0.02	0.49	0.51	1,932.48
Mass Grading Worker Trips	0.21	0.35	6.32	0.01	0.03	0.02	0.04	0.01	0.01	0.02	587.42

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Time Slice 10/1/2010-10/30/2010 Active Days: 26	6.93	58.93	26.31	0.02	90.70	3.15	93.85	18.95	2.90	21.85	6,502.47
Fine Grading 10/01/2010- 01/31/2011	6.93	58.93	26.31	0.02	90.70	3.15	93.85	18.95	2.90	21.85	6,502.47
Fine Grading Dust	0.00	0.00	0.00	0.00	90.61	0.00	90.61	18.92	0.00	18.92	0.00
Fine Grading Off Road Diesel	5.91	44.78	18.30	0.00	0.00	2.61	2.61	0.00	2.40	2.40	4,263.50
Fine Grading On Road Diesel	0.91	13.97	4.71	0.02	0.07	0.53	0.60	0.02	0.49	0.51	1,932.48
Fine Grading Worker Trips	0.11	0.18	3.30	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.48
Time Slice 11/1/2010-12/31/2010 Active Days: 53	16.73	142.42	62.69	<u>0.03</u>	<u>90.72</u>	7.02	97.74	<u>18.96</u>	6.45	25.41	17,001.47
Fine Grading 10/01/2010- 01/31/2011	6.93	58.93	26.31	0.02	90.70	3.15	93.85	18.95	2.90	21.85	6,502.47
Fine Grading Dust	0.00	0.00	0.00	0.00	90.61	0.00	90.61	18.92	0.00	18.92	0.00
Fine Grading Off Road Diesel	5.91	44.78	18.30	0.00	0.00	2.61	2.61	0.00	2.40	2.40	4,263.50
Fine Grading On Road Diesel	0.91	13.97	4.71	0.02	0.07	0.53	0.60	0.02	0.49	0.51	1,932.48
Fine Grading Worker Trips	0.11	0.18	3.30	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.48
Trenching 11/01/2010-06/30/2011	9.81	83.49	36.38	0.00	0.02	3.87	3.89	0.01	3.55	3.56	10,499.01
Trenching Off Road Diesel	9.65	83.22	31.44	0.00	0.00	3.85	3.85	0.00	3.54	3.54	10,039.29
Trenching Worker Trips	0.16	0.27	4.94	0.00	0.02	0.01	0.03	0.01	0.01	0.02	459.72

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Time Slice 1/1/2011-1/31/2011 Active Days: 26	15.66	130.87	59.85	0.03	<u>90.72</u>	6.48	<u>97.20</u>	<u>18.96</u>	5.96	<u>24.92</u>	17,001.72
Fine Grading 10/01/2010- 01/31/2011	6.50	54.48	25.08	0.02	90.70	2.94	93.64	18.95	2.71	21.66	6,502.56
Fine Grading Dust	0.00	0.00	0.00	0.00	90.61	0.00	90.61	18.92	0.00	18.92	0.00
Fine Grading Off Road Diesel	5.56	41.73	17.73	0.00	0.00	2.46	2.46	0.00	2.26	2.26	4,263.50
Fine Grading On Road Diesel	0.84	12.58	4.29	0.02	0.07	0.48	0.54	0.02	0.44	0.46	1,932.48
Fine Grading Worker Trips	0.10	0.17	3.06	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.58
Trenching 11/01/2010-06/30/2011	9.16	76.39	34.77	0.00	0.02	3.54	3.56	0.01	3.26	3.26	10,499.16
Trenching Off Road Diesel	9.01	76.15	30.18	0.00	0.00	3.53	3.53	0.00	3.25	3.25	10,039.29
Trenching Worker Trips	0.15	0.25	4.59	0.00	0.02	0.01	0.03	0.01	0.01	0.02	459.86
Time Slice 2/1/2011-6/30/2011 Active Days: 129	<u>27.11</u>	<u>204.32</u>	<u>247.95</u>	<u>0.19</u>	0.91	<u>9.01</u>	9.92	0.33	<u>8.24</u>	8.57	<u>42,169.26</u>
Building 02/01/2011-09/30/2011	17.11	115.35	208.89	0.16	0.82	4.99	5.82	0.30	4.54	4.84	29,737.62
Building Off Road Diesel	11.73	106.24	40.67	0.00	0.00	4.54	4.54	0.00	4.18	4.18	12,873.59
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	5.37	9.10	168.22	0.16	0.82	0.45	1.27	0.30	0.36	0.66	16,864.03
Mass Grading 02/01/2011- 09/30/2011	0.84	12.58	4.29	0.02	0.07	0.48	0.54	0.02	0.44	0.46	1,932.48
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading On Road Diesel	0.84	12.58	4.29	0.02	0.07	0.48	0.54	0.02	0.44	0.46	1,932.48
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 11/01/2010-06/30/2011	9.16	76.39	34.77	0.00	0.02	3.54	3.56	0.01	3.26	3.26	10,499.16
Trenching Off Road Diesel	9.01	76.15	30.18	0.00	0.00	3.53	3.53	0.00	3.25	3.25	10,039.29
Trenching Worker Trips	0.15	0.25	4.59	0.00	0.02	0.01	0.03	0.01	0.01	0.02	459.86

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Time Slice 7/1/2011-9/30/2011 Active Days: 79	17.95	127.93	213.18	0.18	0.89	5.47	6.36	0.32	4.98	5.30	31,670.10
Building 02/01/2011-09/30/2011	17.11	115.35	208.89	0.16	0.82	4.99	5.82	0.30	4.54	4.84	29,737.62
Building Off Road Diesel	11.73	106.24	40.67	0.00	0.00	4.54	4.54	0.00	4.18	4.18	12,873.59
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	5.37	9.10	168.22	0.16	0.82	0.45	1.27	0.30	0.36	0.66	16,864.03
Mass Grading 02/01/2011-09/30/2011	0.84	12.58	4.29	0.02	0.07	0.48	0.54	0.02	0.44	0.46	1,932.48
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading On Road Diesel	0.84	12.58	4.29	0.02	0.07	0.48	0.54	0.02	0.44	0.46	1,932.48
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 3/1/2012-4/30/2012 Active Days: 52	<u>12.06</u>	<u>99.80</u>	<u>182.75</u>	<u>0.16</u>	<u>0.82</u>	<u>3.07</u>	<u>3.89</u>	<u>0.30</u>	<u>2.77</u>	<u>3.07</u>	<u>28,491.10</u>
Building 03/01/2012-04/30/2012	12.06	99.80	182.75	0.16	0.82	3.07	3.89	0.30	2.77	3.07	28,491.10
Building Off Road Diesel	7.17	91.49	26.91	0.00	0.00	2.62	2.62	0.00	2.41	2.41	11,621.60
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	4.89	8.32	155.85	0.16	0.82	0.45	1.28	0.30	0.36	0.66	16,869.50

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 10/1/2010 - 1/31/2011 - Final grading of site (12.8 acres/day maximum)
For Soil Stabilizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Mass Grading 6/1/2010 - 9/30/2010 - Clearing and grading (12.8 acres/day maximum)

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For Soil Stabilizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (lbs/day, unmitigated)							

[Area Source Changes to Defaults](#)

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	6.11	19.47	70.93	0.07	0.95	0.71	7,201.53
TOTALS (lbs/day, unmitigated)	6.11	19.47	70.93	0.07	0.95	0.71	7,201.53

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	90.20	608.85	5,653.17
					608.85	5,653.17

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	1.6	98.0	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0

Vehicle Type	Vehicle Fleet Mix					
	Percent Type	Non-Catalyst	Catalyst	Diesel		
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0		
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0		
Other Bus	0.0	0.0	0.0	100.0		
Urban Bus	0.0	0.0	0.0	100.0		
Motorcycle	0.0	71.4	28.6	0.0		
School Bus	0.0	0.0	0.0	100.0		
Motor Home	0.0	10.0	80.0	10.0		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry	90.0	5.0	5.0
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Operational Changes to Defaults

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\SDGE\urbemis_update\7-09-09 500 kV loop.urb924

Project Name: SDGE 500 kV Loop

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.01	0.06	0.03	0.00	0.06	0.00	0.06	0.01	0.00	0.01	6.55
2011 TOTALS (tons/year mitigated)	0.01	0.06	0.03	0.00	0.02	0.00	0.03	0.01	0.00	0.01	6.55
Percent Reduction	0.00	0.00	0.00	0.00	59.14	0.00	56.82	59.12	0.00	50.13	0.00
2012 TOTALS (tons/year unmitigated)	0.08	0.70	0.33	0.00	0.00	0.03	0.03	0.00	0.02	0.02	109.04
2012 TOTALS (tons/year mitigated)	0.08	0.70	0.33	0.00	0.00	0.03	0.03	0.00	0.02	0.02	109.04
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated)	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
OPERATIONAL (VEHICLE) EMISSION ESTIMATES							
TOTALS (tons/year, unmitigated)	ROG 0.04	NOx 0.16	CO 0.52	SO2 0.00	PM10 0.01	PM2.5 0.01	CO2 53.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (tons/year, unmitigated)	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.04	0.16	0.52	0.00	0.01	0.01	53.06

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	0.01	0.06	0.03	0.00	0.06	0.00	0.06	0.01	0.00	0.01	6.55
Mass Grading 06/01/2011-06/16/2011	0.01	0.06	0.03	0.00	0.06	0.00	0.06	0.01	0.00	0.01	6.55
Mass Grading Dust	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00
Mass Grading Off Road Diesel	0.01	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.08
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
2012	0.08	0.70	0.33	0.00	0.00	0.03	0.03	0.00	0.02	0.02	109.04
Trenching 04/01/2012-04/30/2012	0.03	0.24	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	38.97
Trenching Off Road Diesel	0.03	0.24	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	36.50
Trenching Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47
Building 05/01/2012-05/16/2012	0.05	0.46	0.20	0.00	0.00	0.02	0.02	0.00	0.01	0.02	70.07
Building Off Road Diesel	0.05	0.44	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	61.66
Building Vendor Trips	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06
Building Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.35

Phase Assumptions

Phase: Mass Grading 6/1/2011 - 6/16/2011 - Clear and grade for access road and pads

Total Acres Disturbed: 2.53

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 4 hours per day

7/21/2009 10:19:44 AM

2012	0.08	0.70	0.33	0.00	0.00	0.03	0.03	0.00	0.02	0.02	0.02	109.04
Trenching 04/01/2012-04/30/2012	0.03	0.24	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	38.97
Trenching Off Road Diesel	0.03	0.24	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	36.50
Trenching Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47
Building 05/01/2012-05/16/2012	0.05	0.46	0.20	0.00	0.00	0.02	0.02	0.00	0.01	0.01	0.02	70.07
Building Off Road Diesel	0.05	0.44	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	0.01	61.66
Building Vendor Trips	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06
Building Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.35

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 6/1/2011 - 6/16/2011 - Clear and grade for access road and pads

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (tons/year, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

Operational Unmitigated Detail Report:	ROG	NOX	CO	SO2	PM10	PM25	CO2
OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated							
Source							
General heavy industry	0.04	0.16	0.52	0.00	0.01	0.01	53.06
TOTALS (tons/year, unmitigated)	0.04	0.16	0.52	0.00	0.01	0.01	53.06

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	2.53	17.08	237.21
					17.08	237.21

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	2.0	97.6	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	77.1	22.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

Residential	Commercial
Home-Work	Home-Work
Home-Shop	Non-Work
Home-Other	Customer
Home-Work	Commute
10.8	9.5
7.3	7.4
7.5	7.4
Urban Trip Length (miles)	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry	90.0	5.0	5.0
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Operational Changes to Defaults

The urban/rural selection has been changed from Urban to Rural

The percentage of paved roads changed from 100% to 90%

The percentage of unpaved roads changed from 0% to 10%

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\SDGE\urbemis_update\7-09-09 500 kV loop.urb924

Project Name: SDGE 500 kV Loop

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	1.17	10.23	5.56	0.00	10.00	0.41	10.41	2.09	0.37	2.46	1,091.03
2011 TOTALS (lbs/day mitigated)	1.17	10.23	5.56	0.00	4.09	0.41	4.50	0.85	0.37	1.23	1,091.03
2012 TOTALS (lbs/day unmitigated)	8.35	76.55	33.49	0.01	0.06	2.70	2.76	0.02	2.48	2.51	11,678.67
2012 TOTALS (lbs/day mitigated)	8.35	76.55	33.49	0.01	0.06	2.70	2.76	0.02	2.48	2.51	11,678.67

AREA SOURCE EMISSION ESTIMATES

TOTALS (lbs/day, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
OPERATIONAL (VEHICLE) EMISSION ESTIMATES	ROG	NOX	CO	SO2	PM10	PM2.5	CO2

TOTALS (lbs/day, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
	0.23	0.81	2.83	0.00	0.04	0.03	299.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (lbs/day, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
	0.23	0.81	2.83	0.00	0.04	0.03	299.87

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
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7/21/2009 10:18:35 AM

Time Slice 6/1/2011-6/16/2011 Active Days: 12	1.17	10.23	5.56	0.00	10.00	0.41	10.41	2.09	0.37	2.46	1,091.03
Mass Grading 06/01/2011- 06/16/2011	1.17	10.23	5.56	0.00	10.00	0.41	10.41	2.09	0.37	2.46	1,091.03
Mass Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Mass Grading Off Road Diesel	1.15	10.19	4.83	0.00	0.00	0.41	0.41	0.00	0.37	0.37	1,012.76
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.73	0.00	0.00	0.00	0.01	0.00	0.00	0.00	78.27
Time Slice 4/2/2012-4/30/2012 Active Days: 21	2.79	22.52	11.87	0.00	0.01	1.02	1.03	0.00	0.94	0.94	3,711.43
Trenching 04/01/2012-04/30/2012	2.79	22.52	11.87	0.00	0.01	1.02	1.03	0.00	0.94	0.94	3,711.43
Trenching Off Road Diesel	2.73	22.41	9.84	0.00	0.00	1.01	1.01	0.00	0.93	0.93	3,476.52
Trenching Worker Trips	0.06	0.11	2.03	0.00	0.01	0.01	0.02	0.00	0.01	0.01	234.91
Time Slice 5/1/2012-5/16/2012 Active Days: 12	8.35	76.55	33.49	0.01	0.06	2.70	2.76	0.02	2.48	2.51	11,678.67
Building 05/01/2012-05/16/2012	8.35	76.55	33.49	0.01	0.06	2.70	2.76	0.02	2.48	2.51	11,678.67
Building Off Road Diesel	7.94	73.18	24.92	0.00	0.00	2.57	2.57	0.00	2.36	2.36	10,276.78
Building Vendor Trips	0.24	3.04	2.31	0.01	0.02	0.12	0.14	0.01	0.11	0.12	677.02
Building Worker Trips	0.17	0.34	6.26	0.01	0.04	0.02	0.05	0.01	0.02	0.03	724.88

Phase Assumptions

Phase: Mass Grading 6/1/2011 - 6/16/2011 - Clear and grade for access road and pads

Total Acres Disturbed: 2.53

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2 hours per day

7/21/2009 10:18:36 AM

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 4 hours per day

Phase: Trenching 4/1/2012 - 4/30/2012 - Install foundations

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day

3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 3 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 5/1/2012 - 5/16/2012 - Tower installation and conductor stringing

Off-Road Equipment:

2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 6/1/2011-6/16/2011 Active Days: 12	1.17	10.23	5.56	0.00	4.09	0.41	4.50	0.85	0.37	1.23	1,091.03
Mass Grading 06/01/2011- 06/16/2011	1.17	10.23	5.56	0.00	4.09	0.41	4.50	0.85	0.37	1.23	1,091.03
Mass Grading Dust	0.00	0.00	0.00	0.00	4.08	0.00	4.08	0.85	0.00	0.85	0.00
Mass Grading Off Road Diesel	1.15	10.19	4.83	0.00	0.00	0.41	0.41	0.00	0.37	0.37	1,012.76
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.73	0.00	0.00	0.00	0.01	0.00	0.00	0.00	78.27

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Time Slice 4/2/2012-4/30/2012 Active Days: 21	2.79	22.52	11.87	0.00	0.01	1.02	1.03	0.00	0.94	0.94	3,711.43
Trenching 04/01/2012-04/30/2012	2.79	22.52	11.87	0.00	0.01	1.02	1.03	0.00	0.94	0.94	3,711.43
Trenching Off Road Diesel	2.73	22.41	9.84	0.00	0.00	1.01	1.01	0.00	0.93	0.93	3,476.52
Trenching Worker Trips	0.06	0.11	2.03	0.00	0.01	0.01	0.02	0.00	0.01	0.01	234.91
Time Slice 5/1/2012-5/16/2012 Active Days: 12	8.35	76.55	33.49	0.01	0.06	2.70	2.76	0.02	2.48	2.51	11,678.67
Building 05/01/2012-05/16/2012	8.35	76.55	33.49	0.01	0.06	2.70	2.76	0.02	2.48	2.51	11,678.67
Building Off Road Diesel	7.94	73.18	24.92	0.00	0.00	2.57	2.57	0.00	2.36	2.36	10,276.78
Building Vendor Trips	0.24	3.04	2.31	0.01	0.02	0.12	0.14	0.01	0.11	0.12	677.02
Building Worker Trips	0.17	0.34	6.26	0.01	0.04	0.02	0.05	0.01	0.02	0.03	724.88

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 6/1/2011 - 6/16/2011 - Clear and grade for access road and pads

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (lbs/day, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.23	0.81	2.83	0.00	0.04	0.03	299.87
TOTALS (lbs/day, unmitigated)	0.23	0.81	2.83	0.00	0.04	0.03	299.87

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emitac: Version : Emitac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	2.53	17.08	237.21
					17.08	237.21

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	2.0	97.6	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	77.1	22.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

Residential	Commercial
Home-Work	Home-Work
Home-Shop	Commute
Home-Other	Non-Work
Home-Work	Customer
10.8	7.4
7.3	9.5
7.5	7.4
7.4	7.4
Urban Trip Length (miles)	

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry	90.0	5.0	5.0
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Operational Changes to Defaults

The urban/rural selection has been changed from Urban to Rural

The percentage of paved roads changed from 100% to 90%

The percentage of unpaved roads changed from 0% to 10%

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\SDGE\urbemis_update\7-09-09 SDGE 138kV transmit.urb924

Project Name: SDGE 138 kV line

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	1.71	15.42	11.69	0.01	5.17	0.61	5.78	1.09	0.56	1.65	2,650.75
2011 TOTALS (tons/year mitigated)	1.71	15.42	11.69	0.01	2.14	0.61	2.75	0.45	0.56	1.01	2,650.75
Percent Reduction	0.00	0.00	0.00	0.00	58.57	0.00	52.40	58.18	0.00	38.44	0.00

AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

TOTALS (tons/year, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
	0.49	1.69	5.71	0.01	0.07	0.06	549.05

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (tons/year, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
	0.49	1.69	5.71	0.01	0.07	0.06	549.05

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
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2011	1.71	15.42	11.69	0.01	5.17	0.61	5.78	1.09	0.56	1.65	2,650.75
Mass Grading 02/01/2011-04/30/2011	0.08	0.67	0.37	0.00	5.12	0.03	5.15	1.07	0.03	1.10	68.44
Mass Grading Dust	0.00	0.00	0.00	0.00	5.12	0.00	5.12	1.07	0.00	1.07	0.00
Mass Grading Off Road Diesel	0.08	0.67	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	63.53
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.91
Trenching 03/01/2011-06/30/2011	0.21	2.02	0.77	0.00	0.00	0.07	0.07	0.00	0.06	0.06	298.25
Trenching Off Road Diesel	0.21	2.01	0.66	0.00	0.00	0.07	0.07	0.00	0.06	0.06	287.01
Trenching Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.24
Building 06/01/2011-08/31/2011	0.72	6.42	5.32	0.01	0.03	0.26	0.28	0.01	0.23	0.24	1,150.74
Building Off Road Diesel	0.49	4.37	1.54	0.00	0.00	0.18	0.18	0.00	0.16	0.16	529.18
Building Vendor Trips	0.15	1.91	1.39	0.00	0.01	0.07	0.09	0.00	0.07	0.07	381.87
Building Worker Trips	0.08	0.13	2.39	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.70
Building 10/01/2011-12/31/2011	0.71	6.32	5.23	0.01	0.03	0.25	0.28	0.01	0.23	0.24	1,133.31
Building Off Road Diesel	0.49	4.31	1.51	0.00	0.00	0.17	0.17	0.00	0.16	0.16	521.16
Building Vendor Trips	0.15	1.89	1.37	0.00	0.01	0.07	0.09	0.00	0.07	0.07	376.09
Building Worker Trips	0.08	0.13	2.35	0.00	0.01	0.01	0.02	0.00	0.01	0.01	236.06

Phase Assumptions

Phase: Mass Grading 2/1/2011 - 4/30/2011 - Clear and grade for poles and access road

Total Acres Disturbed: 38.85

Maximum Daily Acreage Disturbed: 8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

7/21/2009 10:23:38 AM

Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 5 hours per day
- 1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day
- 1 Plate Compactors (8 hp) operating at a 0.43 load factor for 5 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 5 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 5 hours per day

Phase: Trenching 3/1/2011 - 6/30/2011 - Pole foundation installation

Off-Road Equipment:

- 2 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 5 hours per day
- 4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day
- 2 Other Equipment (190 hp) operating at a 0.62 load factor for 4 hours per day
- 2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 4 hours per day

Phase: Building Construction 6/1/2011 - 8/31/2011 - Pole installation

Off-Road Equipment:

- 3 Aerial Lifts (60 hp) operating at a 0.46 load factor for 5 hours per day
- 4 Air Compressors (106 hp) operating at a 0.48 load factor for 4 hours per day
- 3 Cranes (399 hp) operating at a 0.43 load factor for 4.7 hours per day
- 15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4.4 hours per day
- 3 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 4 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day

Phase: Building Construction 10/1/2011 - 12/31/2011 - Conductor stringing and sagging

Off-Road Equipment:

- 3 Aerial Lifts (60 hp) operating at a 0.46 load factor for 5 hours per day
- 4 Air Compressors (106 hp) operating at a 0.48 load factor for 4 hours per day
- 3 Cranes (399 hp) operating at a 0.43 load factor for 4.7 hours per day
- 15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4.4 hours per day

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- 3 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 4 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011	1.71	15.42	11.69	0.01	2.14	0.61	2.75	0.45	0.56	1.01	2,650.75
Mass Grading 02/01/2011-04/30/2011	0.08	0.67	0.37	0.00	2.09	0.03	2.12	0.44	0.03	0.47	68.44
Mass Grading Dust	0.00	0.00	0.00	0.00	2.09	0.00	2.09	0.44	0.00	0.44	0.00
Mass Grading Off Road Diesel	0.08	0.67	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	63.53
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.91
Trenching 03/01/2011-06/30/2011	0.21	2.02	0.77	0.00	0.00	0.07	0.07	0.00	0.06	0.06	298.25
Trenching Off Road Diesel	0.21	2.01	0.66	0.00	0.00	0.07	0.07	0.00	0.06	0.06	287.01
Trenching Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.24
Building 06/01/2011-08/31/2011	0.72	6.42	5.32	0.01	0.03	0.26	0.28	0.01	0.23	0.24	1,150.74
Building Off Road Diesel	0.49	4.37	1.54	0.00	0.00	0.18	0.18	0.00	0.16	0.16	529.18
Building Vendor Trips	0.15	1.91	1.39	0.00	0.01	0.07	0.09	0.00	0.07	0.07	381.87
Building Worker Trips	0.08	0.13	2.39	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.70
Building 10/01/2011-12/31/2011	0.71	6.32	5.23	0.01	0.03	0.25	0.28	0.01	0.23	0.24	1,133.31
Building Off Road Diesel	0.49	4.31	1.51	0.00	0.00	0.17	0.17	0.00	0.16	0.16	521.16
Building Vendor Trips	0.15	1.89	1.37	0.00	0.01	0.07	0.09	0.00	0.07	0.07	376.09
Building Worker Trips	0.08	0.13	2.35	0.00	0.01	0.01	0.02	0.00	0.01	0.01	236.06

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 2/1/2011 - 4/30/2011 - Clear and grade for poles and access road

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (tons/year, unmitigated)							

[Area Source Changes to Defaults](#)

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.49	1.69	5.71	0.01	0.07	0.06	549.05
TOTALS (tons/year, unmitigated)	0.49	1.69	5.71	0.01	0.07	0.06	549.05

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	38.85	262.24	2,434.88
					262.24	2,434.88

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	2.0	97.6	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0

Vehicle Type	Vehicle Fleet Mix					
	Percent Type	Non-Catalyst	Catalyst	Diesel		
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0		
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0		
Other Bus	0.0	0.0	0.0	100.0		
Urban Bus	0.0	0.0	0.0	100.0		
Motorcycle	0.0	77.1	22.9	0.0		
School Bus	0.0	0.0	0.0	100.0		
Motor Home	0.0	10.0	80.0	10.0		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry	90.0	5.0	5.0
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Operational Changes to Defaults

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\SDGE\urbemis_update\7-09-09 SDGE 138kV transmit.urb924

Project Name: SDGE 138 kV line

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (lbs/day unmitigated)	26.48	240.24	178.55	0.18	160.02	9.33	162.61	33.42	8.55	35.80	41,649.58
2011 TOTALS (lbs/day mitigated)	26.48	240.24	178.55	0.18	65.37	9.33	67.96	13.65	8.55	16.03	41,649.58

AREA SOURCE EMISSION ESTIMATES

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>

TOTALS (lbs/day, unmitigated)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
2.67	8.40	30.88	0.03	0.41	0.31	3,102.31

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
2.67	8.40	30.88	0.03	0.41	0.31	3,102.31

TOTALS (lbs/day, unmitigated)

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 2/1/2011-2/28/2011 Active Days: 20	2.50	20.88	11.66	0.00	160.01	1.00	161.01	33.42	0.92	34.34	2,138.64
Mass Grading 02/01/2011- 04/30/2011	2.50	20.88	11.66	0.00	160.01	1.00	161.01	33.42	0.92	34.34	2,138.64
Mass Grading Dust	0.00	0.00	0.00	0.00	160.00	0.00	160.00	33.41	0.00	33.41	0.00
Mass Grading Off Road Diesel	2.45	20.80	10.13	0.00	0.00	0.99	0.99	0.00	0.92	0.92	1,985.35
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.53	0.00	0.01	0.00	0.01	0.00	0.00	0.01	153.29
Time Slice 3/1/2011-4/29/2011 Active Days: 44	7.24	66.71	29.15	0.00	160.02	2.59	162.61	33.42	2.38	35.80	8,917.16
Mass Grading 02/01/2011- 04/30/2011	2.50	20.88	11.66	0.00	160.01	1.00	161.01	33.42	0.92	34.34	2,138.64
Mass Grading Dust	0.00	0.00	0.00	0.00	160.00	0.00	160.00	33.41	0.00	33.41	0.00
Mass Grading Off Road Diesel	2.45	20.80	10.13	0.00	0.00	0.99	0.99	0.00	0.92	0.92	1,985.35
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.53	0.00	0.01	0.00	0.01	0.00	0.00	0.01	153.29
Time Slice 5/2/2011-5/31/2011 Active Days: 22	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48
Time Slice 5/2/2011-5/31/2011 Active Days: 22	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching 03/01/2011-06/30/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48
Time Slice 5/2/2011-5/31/2011 Active Days: 22	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching 03/01/2011-06/30/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48
Time Slice 5/2/2011-5/31/2011 Active Days: 22	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching 03/01/2011-06/30/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48

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Time Slice 6/1/2011-6/30/2011 Active Days: 22	26.48	240.24	178.55	0.18	0.79	9.33	10.12	0.27	8.55	8.83	41,649.58
Building 06/01/2011-08/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50
Trenching 03/01/2011-06/30/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48
Time Slice 7/1/2011-8/31/2011 Active Days: 44	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building 06/01/2011-08/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50
Time Slice 10/3/2011-12/30/2011 Active Days: 65	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building 10/01/2011-12/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50

Phase Assumptions

Phase: Mass Grading 2/1/2011 - 4/30/2011 - Clear and grade for poles and access road

Total Acres Disturbed: 38.85

Maximum Daily Acreage Disturbed: 8

Fugitive Dust Level of Detail: Default

7/21/2009 10:21:35 AM

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 5 hours per day
- 1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day
- 1 Plate Compactors (8 hp) operating at a 0.43 load factor for 5 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 5 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 5 hours per day

Phase: Trenching 3/1/2011 - 6/30/2011 - Pole foundation installation

Off-Road Equipment:

- 2 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 5 hours per day
- 4 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day
- 2 Other Equipment (190 hp) operating at a 0.62 load factor for 4 hours per day
- 2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 4 hours per day

Phase: Building Construction 6/1/2011 - 8/31/2011 - Pole installation

Off-Road Equipment:

- 3 Aerial Lifts (60 hp) operating at a 0.46 load factor for 5 hours per day
- 4 Air Compressors (106 hp) operating at a 0.48 load factor for 4 hours per day
- 3 Cranes (399 hp) operating at a 0.43 load factor for 4.7 hours per day
- 15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4.4 hours per day
- 3 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 4 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day

Phase: Building Construction 10/1/2011 - 12/31/2011 - Conductor stringing and sagging

Off-Road Equipment:

- 3 Aerial Lifts (60 hp) operating at a 0.46 load factor for 5 hours per day
- 4 Air Compressors (106 hp) operating at a 0.48 load factor for 4 hours per day

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- 3 Cranes (399 hp) operating at a 0.43 load factor for 4.7 hours per day
- 15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4.4 hours per day
- 3 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 4 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 2/1/2011-2/28/2011 Active Days: 20	2.50	20.88	11.66	0.00	65.35	1.00	66.35	13.65	0.92	14.57	2,138.64
Mass Grading 02/01/2011- 04/30/2011	2.50	20.88	11.66	0.00	65.35	1.00	66.35	13.65	0.92	14.57	2,138.64
Mass Grading Dust	0.00	0.00	0.00	0.00	65.35	0.00	65.35	13.65	0.00	13.65	0.00
Mass Grading Off Road Diesel	2.45	20.80	10.13	0.00	0.00	0.99	0.99	0.00	0.92	0.92	1,985.35
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.53	0.00	0.01	0.00	0.01	0.00	0.00	0.01	153.29
Time Slice 3/1/2011-4/29/2011 Active Days: 44	7.24	66.71	29.15	0.00	65.37	2.59	67.96	13.65	2.38	16.03	8,917.16
Mass Grading 02/01/2011- 04/30/2011	2.50	20.88	11.66	0.00	65.35	1.00	66.35	13.65	0.92	14.57	2,138.64
Mass Grading Dust	0.00	0.00	0.00	0.00	65.35	0.00	65.35	13.65	0.00	13.65	0.00
Mass Grading Off Road Diesel	2.45	20.80	10.13	0.00	0.00	0.99	0.99	0.00	0.92	0.92	1,985.35
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.53	0.00	0.01	0.00	0.01	0.00	0.00	0.01	153.29
Trenching 03/01/2011-06/30/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48

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Time Slice 5/2/2011-5/31/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Active Days: 22											
Trenching 03/01/2011-06/30/2011	4.74	45.83	17.49	0.00	0.01	1.59	1.60	0.00	1.46	1.47	6,778.52
Trenching Off Road Diesel	4.66	45.69	14.94	0.00	0.00	1.58	1.58	0.00	1.46	1.46	6,523.04
Trenching Worker Trips	0.08	0.14	2.55	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.48
Time Slice 6/1/2011-6/30/2011	26.48	240.24	178.55	0.18	0.79	9.33	10.12	0.27	8.55	8.83	41,649.58
Active Days: 22											
Building 06/01/2011-08/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50
Time Slice 10/3/2011-12/30/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Active Days: 65											
Building 10/01/2011-12/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50
Time Slice 7/1/2011-8/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Active Days: 44											
Building 06/01/2011-08/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50
Time Slice 10/3/2011-12/30/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Active Days: 65											
Building 10/01/2011-12/31/2011	21.74	194.41	161.07	0.18	0.78	7.74	8.52	0.27	7.09	7.36	34,871.06
Building Off Road Diesel	14.95	132.46	46.52	0.00	0.00	5.31	5.31	0.00	4.89	4.89	16,035.63
Building Vendor Trips	4.47	58.03	42.09	0.11	0.42	2.24	2.66	0.14	2.05	2.19	11,571.93
Building Worker Trips	2.31	3.92	72.46	0.07	0.36	0.19	0.55	0.13	0.16	0.29	7,263.50

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 2/1/2011 - 4/30/2011 - Clear and grade for poles and access road

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO ₂	PM10	PM2.5	CO ₂
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (lbs/day, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated									
Source	ROG	NOX	CO	SO2	PM10	PM25	CO2		
General heavy industry	2.67	8.40	30.88	0.03	0.41	0.31	3,102.31		
TOTALS (lbs/day, unmitigated)	2.67	8.40	30.88	0.03	0.41	0.31	3,102.31		

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emitac: Version : Emitac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	38.85	262.24	2,434.88
					262.24	2,434.88

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	2.0	97.6	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite+Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite+Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	77.1	22.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry	90.0	5.0	5.0
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Operational Changes to Defaults

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: B:\Project\SDGE\urbemis_update\7-09-09 SDGE Boulevard sub.urb924

Project Name: SDGE Boulevard Substation

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (tons/year unmitigated)	0.83	7.10	3.61	0.00	2.94	0.34	3.27	0.61	0.31	0.93	915.80		
2011 TOTALS (tons/year mitigated)	0.83	7.10	3.61	0.00	1.19	0.34	1.52	0.25	0.31	0.56	915.80		
Percent Reduction	0.00	0.00	0.00	0.00	59.63	0.00	53.45	59.48	0.00	39.46	0.00		
2012 TOTALS (tons/year unmitigated)	0.10	0.79	0.56	0.00	0.00	0.04	0.04	0.00	0.04	0.04	124.99		
2012 TOTALS (tons/year mitigated)	0.10	0.79	0.56	0.00	0.00	0.04	0.04	0.00	0.04	0.04	124.99		
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)							
OPERATIONAL (VEHICLE) EMISSION ESTIMATES							
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.05	0.16	0.55	0.00	0.01	0.01	52.99

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.05	0.16	0.55	0.00	0.01	0.01	52.99

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

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Building 09/01/2011-11/30/2011	0.24	1.70	1.05	0.00	0.00	0.08	0.08	0.00	0.08	0.08	0.00	0.08	0.08	0.08	238.87
Building Off Road Diesel	0.22	1.51	0.69	0.00	0.00	0.07	0.07	0.00	0.07	0.07	0.00	0.07	0.07	0.07	179.78
Building Vendor Trips	0.01	0.18	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	36.30
Building Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.79
2012	0.10	0.79	0.56	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	0.04	0.04	0.04	124.99
Building 01/01/2012-02/29/2012	0.02	0.18	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	45.76
Building Off Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.67
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	24.02
Building Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.08
Demolition 05/01/2012-06/30/2012	0.08	0.61	0.33	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	0.03	0.03	0.03	79.22
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.08	0.61	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	0.03	0.03	0.03	73.60
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62

Phase Assumptions

Phase: Demolition 2/1/2011 - 3/31/2011 - Demolition of residential structures on new parcel

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Demolition 5/1/2012 - 6/30/2012 - Demo existing substation

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Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 3 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 4 hours per day

1 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Phase: Fine Grading 4/1/2011 - 5/31/2011 - Final grading, import and export fill

Total Acres Disturbed: 3.75

Maximum Daily Acreage Disturbed: 3.4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 558.14

Off-Road Equipment:

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 6 hours per day

1 Excavators (168 hp) operating at a 0.57 load factor for 4 hours per day

5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2.8 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 6 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 5 hours per day

Phase: Mass Grading 2/1/2011 - 3/31/2011 - Clearing and grading near site, import and export fill

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Total Acres Disturbed: 3.75

Maximum Daily Acreage Disturbed: 3.4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 2046.51

Off-Road Equipment:

- 1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2 hours per day
- 2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 2 Scrapers (313 hp) operating at a 0.72 load factor for 6 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 5 hours per day

Phase: Trenching 6/1/2011 - 8/31/2011 - Foundation excavation of new building, below grade construction

Off-Road Equipment:

- 2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day
- 3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 5.3 hours per day
- 2 Other Equipment (190 hp) operating at a 0.62 load factor for 4 hours per day
- 2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day
- 1 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day
- 3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5.3 hours per day
- 1 Trenchers (63 hp) operating at a 0.75 load factor for 4 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Phase: Building Construction 9/1/2011 - 11/30/2011 - Above grade building construction

Off-Road Equipment:

- 2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day
- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 24 hours per day
- 2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 4/1/2011 - 5/31/2011 - Final grading, import and export fill

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Mass Grading 2/1/2011 - 3/31/2011 - Clearing and grading near site, import and export fill

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO₂</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO₂</u>
Natural Gas							
Hearth							
Landscpe							
Consumer Products							
Architectural Coatings							
TOTALS (tons/year, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated							
Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.05	0.16	0.55	0.00	0.01	0.01	52.99
TOTALS (tons/year, unmitigated)	0.05	0.16	0.55	0.00	0.01	0.01	52.99

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry	6.75		acres	3.75	25.31	235.03
					25.31	235.03

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	1.6	98.0	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	71.4	28.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential				Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4	
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6	
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0	
% of Trips - Residential	32.9	18.0	49.1				

% of Trips - Commercial (by land use)

General heavy industry

90.0

5.0

5.0

Operational Changes to Defaults

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: B:\Project\SDGE\urbemis_update\7-09-09 SDGE Boulevard sub.urb924

Project Name: SDGE Boulevard Substation

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	11.87	122.28	55.77	0.08	68.30	5.42	73.72	14.30	4.99	19.29	15,321.30
2011 TOTALS (lbs/day mitigated)	11.87	122.28	55.77	0.08	27.60	5.42	33.02	5.80	4.99	10.79	15,321.30
2012 TOTALS (lbs/day unmitigated)	3.60	27.74	14.82	0.02	0.07	1.46	1.47	0.03	1.34	1.35	3,601.05
2012 TOTALS (lbs/day mitigated)	3.60	27.74	14.82	0.02	0.07	1.46	1.47	0.03	1.34	1.35	3,601.05

AREA SOURCE EMISSION ESTIMATES

TOTALS (lbs/day, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
OPERATIONAL (VEHICLE) EMISSION ESTIMATES	ROG	NOX	CO <td>SO2 <td>PM10 <td>PM2.5 <td>CO2</td> </td></td></td>	SO2 <td>PM10 <td>PM2.5 <td>CO2</td> </td></td>	PM10 <td>PM2.5 <td>CO2</td> </td>	PM2.5 <td>CO2</td>	CO2

TOTALS (lbs/day, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
0.25	0.81	2.95	0.00	0.04	0.03	299.40	

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (lbs/day, unmitigated)	ROG	NOX	CO	SO2	PM10	PM2.5	CO2
0.25	0.81	2.95	0.00	0.04	0.03	299.40	

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOX	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
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Time Slice 2/1/2011-3/31/2011 Active Days: 43	<u>11.87</u>	<u>122.28</u>	<u>55.77</u>	<u>0.08</u>	<u>68.30</u>	<u>5.42</u>	<u>73.72</u>	<u>14.30</u>	<u>4.99</u>	<u>19.29</u>	<u>15,321.30</u>
Demolition 02/01/2011- 03/31/2011	2.64	20.51	12.31	0.00	0.00	1.16	1.17	0.00	1.07	1.07	2,081.27
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.61	20.46	11.29	0.00	0.00	1.16	1.16	0.00	1.07	1.07	1,979.08
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	1.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.19
Mass Grading 02/01/2011- 03/31/2011	9.23	101.76	43.47	0.08	68.30	4.26	72.56	14.30	3.92	18.22	13,240.03
Mass Grading Dust	0.00	0.00	0.00	0.00	68.00	0.00	68.00	14.20	0.00	14.20	0.00
Mass Grading Off Road Diesel	5.56	47.99	22.87	0.00	0.00	2.22	2.22	0.00	2.04	2.04	4,770.82
Mass Grading On Road Diesel	3.60	53.65	18.30	0.08	0.29	2.03	2.32	0.09	1.87	1.96	8,239.27
Mass Grading Worker Trips	0.07	0.12	2.29	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.93
Time Slice 4/1/2011-5/31/2011 Active Days: 43	6.80	59.63	28.47	0.02	68.10	2.96	71.06	14.23	2.73	16.96	7,513.20
Fine Grading 04/01/2011- 05/31/2011	6.80	59.63	28.47	0.02	68.10	2.96	71.06	14.23	2.73	16.96	7,513.20
Fine Grading Dust	0.00	0.00	0.00	0.00	68.00	0.00	68.00	14.20	0.00	14.20	0.00
Fine Grading Off Road Diesel	5.70	44.80	19.91	0.00	0.00	2.40	2.40	0.00	2.21	2.21	4,908.46
Fine Grading On Road Diesel	0.98	14.63	4.99	0.02	0.08	0.55	0.63	0.03	0.51	0.53	2,247.07
Fine Grading Worker Trips	0.11	0.19	3.57	0.00	0.02	0.01	0.03	0.01	0.01	0.01	357.67
Time Slice 6/1/2011-8/31/2011 Active Days: 66	5.60	44.84	22.76	0.00	0.02	2.32	2.33	0.01	2.13	2.14	5,636.26
Trenching 06/01/2011-08/31/2011	5.60	44.84	22.76	0.00	0.02	2.32	2.33	0.01	2.13	2.14	5,636.26
Trenching Off Road Diesel	5.48	44.64	18.93	0.00	0.00	2.31	2.31	0.00	2.12	2.12	5,253.04
Trenching Worker Trips	0.12	0.21	3.82	0.00	0.02	0.01	0.03	0.01	0.01	0.02	383.22

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Time Slice 9/1/2011-11/30/2011 Active Days: 65	7.46	52.45	32.32	0.02	0.07	2.54	2.61	0.03	2.33	2.36	7,349.72
Building 09/01/2011-11/30/2011	7.46	52.45	32.32	0.02	0.07	2.54	2.61	0.03	2.33	2.36	7,349.72
Building Off Road Diesel	6.80	46.47	21.26	0.00	0.00	2.30	2.30	0.00	2.12	2.12	5,531.63
Building Vendor Trips	0.43	5.60	4.06	0.01	0.04	0.22	0.26	0.01	0.20	0.21	1,116.98
Building Worker Trips	0.22	0.38	6.99	0.01	0.03	0.02	0.05	0.01	0.02	0.03	701.11
Time Slice 1/2/2012-2/29/2012 Active Days: 43	0.88	8.28	11.00	<u>0.02</u>	<u>0.07</u>	0.31	0.38	<u>0.03</u>	0.28	0.31	2,128.59
Building 01/01/2012-02/29/2012	0.88	8.28	11.00	0.02	0.07	0.31	0.38	0.03	0.28	0.31	2,128.59
Building Off Road Diesel	0.28	2.93	0.75	0.00	0.00	0.10	0.10	0.00	0.09	0.09	310.23
Building Vendor Trips	0.40	5.01	3.77	0.01	0.04	0.19	0.23	0.01	0.18	0.19	1,117.02
Building Worker Trips	0.20	0.35	6.48	0.01	0.03	0.02	0.05	0.01	0.02	0.03	701.34
Time Slice 5/1/2012-6/29/2012 Active Days: 44	<u>3.60</u>	<u>27.74</u>	<u>14.82</u>	0.00	0.01	<u>1.46</u>	<u>1.47</u>	0.00	<u>1.34</u>	<u>1.35</u>	<u>3,601.05</u>
Demolition 05/01/2012-06/30/2012	3.60	27.74	14.82	0.00	0.01	1.46	1.47	0.00	1.34	1.35	3,601.05
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	3.53	27.62	12.46	0.00	0.00	1.45	1.45	0.00	1.34	1.34	3,345.49
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.07	0.13	2.36	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.56

Phase Assumptions

Phase: Demolition 2/1/2011 - 3/31/2011 - Demolition of residential structures on new parcel

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2 hours per day

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- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Demolition 5/1/2012 - 6/30/2012 - Demo existing substation

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

- 2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day
- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 3 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 4 hours per day
- 1 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Phase: Fine Grading 4/1/2011 - 5/31/2011 - Final grading, import and export fill

Total Acres Disturbed: 3.75

Maximum Daily Acreage Disturbed: 3.4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 558.14

Off-Road Equipment:

- 1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 6 hours per day
- 1 Excavators (168 hp) operating at a 0.57 load factor for 4 hours per day
- 5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2.8 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 6 hours per day
- 1 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
- 2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 4 hours per day

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- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 5 hours per day

Phase: Mass Grading 2/1/2011 - 3/31/2011 - Clearing and grading near site, import and export fill

Total Acres Disturbed: 3.75

Maximum Daily Acreage Disturbed: 3.4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 2046.51

Off-Road Equipment:

- 1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 2 hours per day
- 2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 2 Scrapers (313 hp) operating at a 0.72 load factor for 6 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 5 hours per day

Phase: Trenching 6/1/2011 - 8/31/2011 - Foundation excavation of new building, below grade construction

Off-Road Equipment:

- 2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day
- 3 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 5.3 hours per day
- 2 Other Equipment (190 hp) operating at a 0.62 load factor for 4 hours per day
- 2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day
- 1 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day
- 3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5.3 hours per day
- 1 Trenchers (63 hp) operating at a 0.75 load factor for 4 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Phase: Building Construction 9/1/2011 - 11/30/2011 - Above grade building construction

Off-Road Equipment:

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- 2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day
- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 24 hours per day
- 2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day
- 7 Other Equipment (190 hp) operating at a 0.62 load factor for 2.9 hours per day
- 2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day
- 1 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 6 hours per day

Phase: Building Construction 1/1/2012 - 2/29/2012 - Testing and commissioning

Off-Road Equipment:

- 2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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Time Slice 2/1/2011-3/31/2011 Active Days: 43	11.87	122.28	55.77	0.08	27.60	5.42	33.02	5.80	4.99	10.79	15,321.30
Demolition 02/01/2011- 03/31/2011	2.64	20.51	12.31	0.00	0.00	1.16	1.17	0.00	1.07	1.07	2,081.27
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	2.61	20.46	11.29	0.00	0.00	1.16	1.16	0.00	1.07	1.07	1,979.08
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	1.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.19
Mass Grading 02/01/2011- 03/31/2011	9.23	101.76	43.47	0.08	27.59	4.26	31.85	5.80	3.92	9.71	13,240.03
Mass Grading Dust	0.00	0.00	0.00	0.00	27.29	0.00	27.29	5.70	0.00	5.70	0.00
Mass Grading Off Road Diesel	5.56	47.99	22.87	0.00	0.00	2.22	2.22	0.00	2.04	2.04	4,770.82
Mass Grading On Road Diesel	3.60	53.65	18.30	0.08	0.29	2.03	2.32	0.09	1.87	1.96	8,239.27
Mass Grading Worker Trips	0.07	0.12	2.29	0.00	0.01	0.01	0.02	0.00	0.00	0.01	229.93
Time Slice 4/1/2011-5/31/2011 Active Days: 43	6.80	59.63	28.47	0.02	27.39	2.96	30.35	5.73	2.73	8.46	7,513.20
Fine Grading 04/01/2011- 05/31/2011	6.80	59.63	28.47	0.02	27.39	2.96	30.35	5.73	2.73	8.46	7,513.20
Fine Grading Dust	0.00	0.00	0.00	0.00	27.29	0.00	27.29	5.70	0.00	5.70	0.00
Fine Grading Off Road Diesel	5.70	44.80	19.91	0.00	0.00	2.40	2.40	0.00	2.21	2.21	4,908.46
Fine Grading On Road Diesel	0.98	14.63	4.99	0.02	0.08	0.55	0.63	0.03	0.51	0.53	2,247.07
Fine Grading Worker Trips	0.11	0.19	3.57	0.00	0.02	0.01	0.03	0.01	0.01	0.01	357.67
Time Slice 6/1/2011-8/31/2011 Active Days: 66	5.60	44.84	22.76	0.00	0.02	2.32	2.33	0.01	2.13	2.14	5,636.26
Trenching 06/01/2011-08/31/2011	5.60	44.84	22.76	0.00	0.02	2.32	2.33	0.01	2.13	2.14	5,636.26
Trenching Off Road Diesel	5.48	44.64	18.93	0.00	0.00	2.31	2.31	0.00	2.12	2.12	5,253.04
Trenching Worker Trips	0.12	0.21	3.82	0.00	0.02	0.01	0.03	0.01	0.01	0.02	383.22

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Time Slice 9/1/2011-11/30/2011 Active Days: 65	7.46	52.45	32.32	0.02	0.07	2.54	2.61	0.03	2.33	2.36	7,349.72
Building 09/01/2011-11/30/2011	7.46	52.45	32.32	0.02	0.07	2.54	2.61	0.03	2.33	2.36	7,349.72
Building Off Road Diesel	6.80	46.47	21.26	0.00	0.00	2.30	2.30	0.00	2.12	2.12	5,531.63
Building Vendor Trips	0.43	5.60	4.06	0.01	0.04	0.22	0.26	0.01	0.20	0.21	1,116.98
Building Worker Trips	0.22	0.38	6.99	0.01	0.03	0.02	0.05	0.01	0.02	0.03	701.11
Time Slice 1/2/2012-2/29/2012 Active Days: 43	0.88	8.28	11.00	<u>0.02</u>	<u>0.07</u>	0.31	0.38	<u>0.03</u>	0.28	0.31	2,128.59
Building 01/01/2012-02/29/2012	0.88	8.28	11.00	0.02	0.07	0.31	0.38	0.03	0.28	0.31	2,128.59
Building Off Road Diesel	0.28	2.93	0.75	0.00	0.00	0.10	0.10	0.00	0.09	0.09	310.23
Building Vendor Trips	0.40	5.01	3.77	0.01	0.04	0.19	0.23	0.01	0.18	0.19	1,117.02
Building Worker Trips	0.20	0.35	6.48	0.01	0.03	0.02	0.05	0.01	0.02	0.03	701.34
Time Slice 5/1/2012-6/29/2012 Active Days: 44	<u>3.60</u>	<u>27.74</u>	<u>14.82</u>	0.00	0.01	<u>1.46</u>	<u>1.47</u>	0.00	<u>1.34</u>	<u>1.35</u>	<u>3,601.05</u>
Demolition 05/01/2012-06/30/2012	3.60	27.74	14.82	0.00	0.01	1.46	1.47	0.00	1.34	1.35	3,601.05
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	3.53	27.62	12.46	0.00	0.00	1.45	1.45	0.00	1.34	1.34	3,345.49
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.07	0.13	2.36	0.00	0.01	0.01	0.02	0.00	0.01	0.01	255.56

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 4/1/2011 - 5/31/2011 - Final grading, import and export fill

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

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PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Mass Grading 2/1/2011 - 3/31/2011 - Clearing and grading near site, import and export fill

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (lbs/day, unmitigated)							

[Area Source Changes to Defaults](#)

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.25	0.81	2.95	0.00	0.04	0.03	299.40
TOTALS (lbs/day, unmitigated)	0.25	0.81	2.95	0.00	0.04	0.03	299.40

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry	6.75	acres	3.75	25.31	235.03	235.03

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	1.6	98.0	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0

Vehicle Type	Vehicle Fleet Mix					
	Percent Type	Non-Catalyst	Catalyst	Diesel		
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0		
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0		
Other Bus	0.0	0.0	0.0	100.0		
Urban Bus	0.0	0.0	0.0	100.0		
Motorcycle	0.0	71.4	28.6	0.0		
School Bus	0.0	0.0	0.0	100.0		
Motor Home	0.0	10.0	80.0	10.0		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

General heavy industry	90.0	5.0	5.0
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Operational Changes to Defaults

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\SDGE\urbemis_update\7-09-09 Comm tower.urb924

Project Name: Communication Tower White Star

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2010	0.28	2.52	0.92	0.00	0.00	0.09	0.09	0.00	0.09	0.09	308.90
Trenching 06/01/2010-07/31/2010	0.26	2.40	0.87	0.00	0.00	0.09	0.09	0.00	0.08	0.08	296.59
Trenching Off Road Diesel	0.26	2.40	0.80	0.00	0.00	0.09	0.09	0.00	0.08	0.08	289.85
Trenching Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74
Building 08/01/2010-09/30/2010	0.01	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.31
Building Off Road Diesel	0.01	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.20
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04

Phase Assumptions

Phase: Trenching 6/1/2010 - 7/31/2010 - Site development and foundation installation

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day

10 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 8/1/2010 - 9/30/2010 - Building and tower installation

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

7/21/2009 10:11:53 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (tons/year, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.00	0.00	0.00	0.00	0.00	0.00	0.14
TOTALS (tons/year, unmitigated)	0.00	0.00	0.00	0.00	0.00	0.00	0.14

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	0.01	0.07	0.63
					0.07	0.63

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	1.6	98.0	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	71.4	28.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commercial		
Urban Trip Length (miles)	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential				Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6	
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0	
% of Trips - Residential	32.9	18.0	49.1				
% of Trips - Commercial (by land use)				90.0	5.0	5.0	
General heavy industry							

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\SDGE\urbemis_update\7-09-09 Comm tower.urb924

Project Name: Communication Tower White Star

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2010 TOTALS (lbs/day unmitigated)	11.94	109.21	39.68	0.00	0.01	4.09	4.11	0.01	3.76	3.77	13,481.48

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)							

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.00	0.00	0.01	0.00	0.00	0.00	0.80

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.00	0.00	0.01	0.00	0.00	0.00	0.80

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 6/1/2010-7/30/2010	11.94	109.21	39.68	0.00	0.01	4.09	4.11	0.01	3.76	3.77	13,481.48
Active Days: 44											
Trenching 06/01/2010-07/31/2010	11.94	109.21	39.68	0.00	0.01	4.09	4.11	0.01	3.76	3.77	13,481.48
Trenching Off Road Diesel	11.83	109.03	36.39	0.00	0.00	4.08	4.08	0.00	3.76	3.76	13,175.01
Trenching Worker Trips	0.11	0.18	3.30	0.00	0.01	0.01	0.02	0.01	0.01	0.01	306.48
Time Slice 8/2/2010-9/30/2010	0.57	5.48	2.07	0.00	0.00	0.20	0.20	0.00	0.19	0.19	559.44
Active Days: 44											
Building 08/01/2010-09/30/2010	0.57	5.48	2.07	0.00	0.00	0.20	0.20	0.00	0.19	0.19	559.44
Building Off Road Diesel	0.57	5.46	2.04	0.00	0.00	0.20	0.20	0.00	0.19	0.19	554.59
Building Vendor Trips	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98
Building Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87

Phase Assumptions

Phase: Trenching 6/1/2010 - 7/31/2010 - Site development and foundation installation

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day

10 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 8/1/2010 - 9/30/2010 - Building and tower installation

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscape							
Consumer Products							
Architectural Coatings							
TOTALS (lbs/day, unmitigated)							

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.00	0.00	0.01	0.00	0.00	0.00	0.80
TOTALS (lbs/day, unmitigated)	0.00	0.00	0.01	0.00	0.00	0.00	0.80

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		6.75	acres	0.01	0.07	0.63
					0.07	0.63

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	25.0	1.6	98.0	0.4
Light Truck < 3750 lbs	30.0	3.7	90.8	5.5
Light Truck 3751-5750 lbs	15.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	10.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	5.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	5.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	5.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	5.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	71.4	28.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commercial		
Urban Trip Length (miles)	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
	10.8	7.3	7.5	9.5	7.4	7.4

Travel Conditions

	Residential				Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6	
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0	
% of Trips - Residential	32.9	18.0	49.1				
% of Trips - Commercial (by land use)				90.0	5.0	5.0	
General heavy industry							

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\SDGE\urbemis_update\7-09-09 SDGE ECO Imperial County.urb924

Project Name: East County substation, Imperial County emissions

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.75	11.56	3.90	0.01	0.06	0.44	0.50	0.02	0.41	0.42	1,600.10
2011 TOTALS (tons/year unmitigated)	0.89	13.25	4.52	0.02	0.07	0.50	0.57	0.02	0.46	0.48	2,034.91

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)							

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.34	0.20	2.72	0.00	0.00	0.00	30.84

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.34	0.20	2.72	0.00	0.00	0.00	30.84

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
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Phase Assumptions

Phase: Fine Grading 10/1/2010 - 1/31/2011 - Water truck traffic in Imperial County

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 4320

Off-Road Equipment:

Phase: Mass Grading 6/1/2010 - 9/30/2010 - Water truck traffic in Imperial County (3,000 trips, 72 miles R/T, Imperial County)

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 4320

Off-Road Equipment:

Phase: Mass Grading 2/1/2011 - 9/30/2011 - Haul truck trips separate from grading (10,000 trips over 8 months, 72 miles R/T, Imperial County)

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 4320

Off-Road Equipment:

Construction Related Mitigation Measures

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\SDGE\urbemis_update\7-09-09 SDGE ECO Imperial County.urb924

Project Name: East County substation, Imperial County emissions

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	8.19	125.70	42.38	0.16	0.61	4.80	5.40	0.20	4.41	4.61	17,392.36
2011 TOTALS (lbs/day unmitigated)	7.59	113.25	38.63	0.16	0.61	4.28	4.89	0.20	3.94	4.14	17,392.36

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.03	0.96	13.08	0.00	0.02	0.01	169.00

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.03	0.96	13.08	0.00	0.02	0.01	169.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
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Time Slice 2/1/2011-9/30/2011	7.59	113.25	38.63	0.16	0.61	4.28	4.89	0.20	3.94	4.14	17,392.36
Active Days: 208											
Mass Grading 02/01/2011-09/30/2011	7.59	113.25	38.63	0.16	0.61	4.28	4.89	0.20	3.94	4.14	17,392.36
Mass Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading On Road Diesel	7.59	113.25	38.63	0.16	0.61	4.28	4.89	0.20	3.94	4.14	17,392.36
Mass Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/1/2010 - 1/31/2011 - Water truck traffic in Imperial County

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 4320

Off-Road Equipment:

Phase: Mass Grading 6/1/2010 - 9/30/2010 - Water truck traffic in Imperial County (3,000 trips, 72 miles R/T, Imperial County)

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 4320

Off-Road Equipment:

Phase: Mass Grading 2/1/2011 - 9/30/2011 - Haul truck trips separate from grading (10,000 trips over 8 months, 72 miles R/T, Imperial County)

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

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0 lbs per acre-day

On Road Truck Travel (VMT): 4320

Off-Road Equipment:

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

GHG CALCULATIONS

GHG Emissions from Generator Use - Construction

Constant	Value	Units	Source
Generator Output	50	kW	--
Number of Generators	2	--	--
Fuel Consumption	230	scf/hour	--
Daily hours of Operation	24	hours	--
Days Used	60	days	--
Btu per scf	1,020	Btu/ft ³	AP-42; Table 3.2-2
LPG CO ₂ Factor	63.16	kg CO ₂ /MMBTU	CCAR GRP v3.1 Table C.7
LPG N ₂ O Factor	0.0006	kg N ₂ O/MMBTU	CCAR GRP v3.1 Table C.8
LPG CH ₄ Factor	0.003	kg CH ₄ /MMBTU	CCAR GRP v3.1 Table C.8
N ₂ O Global Warming Potential	310	--	CCAR GRP v3.1 Table C.1
CH ₄ Global Warming Potential	21	--	CCAR GRP v3.1 Table C.1
Daily Fuel Consumption	11,260,800.00	Btu/day	
Total Fuel Consumption	675,648,000.00	Btu	
Total Fuel Consumption	675.648	MMBTU	

CO ₂ Emissions (kg/year)	N ₂ O Emissions (kg/year)	CH ₄ Emissions (kg/year)	CO ₂ Emissions (metric tons/year)	N ₂ O Emissions (metric tons/year)	CH ₄ Emissions (metric tons/year)	N ₂ O CO ₂ E Emissions (metric tons/year)	CH ₄ CO ₂ E Emissions (metric tons/year)	Total CO ₂ E (metric tons/year)
42,673.93	0.41	2.03	42.67	0.00	0.00	0.13	0.04	42.84

GHG Emissions from Generator Use - Operation

Constant	Value	Units	Source
LPG lower heating value	1.020	Btu/ft ³	AP-42; Table 3.2-2
LPG CO ₂ Factor	63.16	kg CO ₂ /MMBTU	CCAR GRP v3.1 Table C.7
LPG N ₂ O Factor	0.0006	kg N ₂ O/MMBTU	CCAR GRP v3.1 Table C.8
LPG CH ₄ Factor	0.003	kg CH ₄ /MMBTU	CCAR GRP v3.1 Table C.8
Diesel CO ₂ Factor	10.15	kg CO ₂ /gallon	CCAR GRP v3.1 Table C.7
Diesel N ₂ O Factor	0.0001	kg N ₂ O/gallon	CCAR GRP v3.1 Table C.9
Diesel CH ₄ Factor	0.0004	kg CH ₄ /gallon	CCAR GRP v3.1 Table C.9
N ₂ O Global Warming Potential	310	--	CCAR GRP v3.1 Table C.1
CH ₄ Global Warming Potential	21	--	CCAR GRP v3.1 Table C.1

Project Component	Fuel Type	Annual Hours	Fuel Consumption Rate	Units	Annual Fuel Consumption	Units	Notes
ECCO Substation - Generator #1	Diesel	50	15.3	gallons/hr	765	gallons	Kohler 200REOZJD
ECCO Substation - Generator #2	Diesel	50	8.2	gallons/hr	410	gallons	Kohler 100REOZJD
White Star Communication Facility	LPG	50	166	ft ³ /hr	8.47	MMBtu	Kohler 25RZGB

GHG Emissions from Auxiliary Power Consumption

Constant	Value	Units	Source
eGRID Subregion	CAMX	--	CCAR GRP v3.1 Page 34
CO ₂ Electricity Emission Factor	724.12	Ibs CO ₂ /MWh	CCAR GRP v3.1 Table C.2
N ₂ O Electricity Emission Factor	0.0081	Ibs N ₂ O/MWh	CCAR GRP v3.1 Table C.2
CH ₄ Electricity Emission Factor	0.0302	Ibs CH ₄ /MWh	CCAR GRP v3.1 Table C.2
N ₂ O Global Warming Potential	310	--	CCAR GRP v3.1 Table C.1
CH ₄ Global Warming Potential	21	--	CCAR GRP v3.1 Table C.1

Facility	Annual Consumption	Units	Annual Consumption	Units
ECO Substation	483,530.00	kWh/year	483.53	MWh/year
Boulevard Substation Rebuild	123,529.00	kWh/year	123.53	MWh/year
White Star Communication Facility	37,000.00	kWh/year	37.00	MWh/year

Facility	CO ₂ Emissions (metric tons/year)	N ₂ O Emissions (metric tons/year)	CH ₄ Emissions (metric tons/year)	N ₂ O CO ₂ E Emissions (metric tons/year)	CH ₄ CO ₂ E Emissions (metric tons/year)	Total CO ₂ E (metric tons/year)
ECO Substation	158.82	1.78	6.62	550.73	139.10	848.64
Boulevard Substation Rebuild	40.57	0.45	1.69	140.70	35.54	216.81
White Star Communication Facility	12.15	0.14	0.51	42.14	10.64	64.94

Constant	Value	Units	Source
Breaker Annual Leak Rate	0.29%	-	SDG&E
Cylinder Annual Leak Rate	0.29%	-	SDG&E
SF ₆ Global Warming Potential	23,900	-	CCAR GRP v3.1 Table C.1

Project Component	INITIAL ARRANGEMENT				ULTIMATE ARRANGEMENT					
	Equipment SF ₆ Capacity (pounds)	Quantity	Total SF ₆ (pounds)	Annual SF ₆ Leaked (pounds)	Annual SF ₆ Leaked (metric tons)	Quantity	Total SF ₆ (pounds)	Annual SF ₆ Leaked (pounds)	Annual SF ₆ Leaked (metric tons)	Annual CO ₂ E Leaked (metric tons)
ECO Substation										
Breakers										
500 kV	1,157	3	3,471	10,066	0.005	15	17,355	50,330	0.023	545.62
230 kV	161	9	1,449	4,202	0.002	26	4,186	12,139	0.006	131.60
138 kV	128	4	512	1,485	0.001	18	2,304	6,682	0.003	72.43
69 kV	33	0	0	0.000	0.000	0	0	0.000	0.000	0.00
Cylinders	115	6	690	2,001	0.001	6	690	2,001	0.001	21.69
Boulevard Substation Rebuild										
Breakers										
500 kV	1,157	0	0	0.000	0.000	0	0	0.000	0.000	0.00
230 kV	161	0	0	0.000	0.000	0	0	0.000	0.000	0.00
138 kV	128	5	640	1,856	0.001	11	1,408	4,083	0.002	44.27
69 kV	33	2	66	0.191	0.000	5	165	0.479	0.000	5.19
Cylinders	115	0	0	0.000	0.000	0	0	0.000	0.000	0.00

Table of Constants and Assumptions

Constant	Value	Units	Source
kg of CO2 per Gallon of Diesel Fuel	10.15	kg/gallon	CCAR GRP v3.1 Table C.3
g N2O per Gallon of Diesel Fuel - Off-Road	0.26	g/gallon	CCAR GRP v3.1 Table C.6
g CH4 per Gallon of Diesel Fuel - Off-Road	0.58	g/gallon	CCAR GRP v3.1 Table C.6
g N2O per Gallon of Diesel Fuel - HD Trucks	0.332		- California Greenhouse Gas Inventory
g CH4 per Gallon of Diesel Fuel - HD Trucks	0.303		- California Greenhouse Gas Inventory
g N2O per Gallon of Diesel Fuel - LD trucks/cars*	0.332		- California Greenhouse Gas Inventory
g CH4 per Gallon of Diesel Fuel - LD trucks/cars*	0.196		- California Greenhouse Gas Inventory
N2O Global Warming Potential	310		- CCAR GRP v3.1 Table C.1
CH4 Global Warming Potential	21		- CCAR GRP v3.1 Table C.1
Convert tons to kg	907.2		
Convert g to kg	0.001		
Convert pounds to tons	0.0005		
Convert kg to metric tons	0.001		

* Values from light duty trucks and passenger vehicles were averaged to develop these emission rates in order to be more conservative

References

Title/Document	Agency	Hyperlink	Date Visited
California Climate Action Registry General Reporting Protocol Version 3.1	California Climate Action Registry	http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html	23-Apr-09
California Greenhouse Gas Inventory	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/doc.htm	23-Apr-09
Passenger Vehicles, Distillate, CH4, 2004	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/docs1/1A3bi_Onroad_Passengercars_Fuelcombustion_Distillate_CH4_2004.htm	23-Apr-09
Passenger Vehicles, Distillate, N2O, 2004	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/docs1/1A3bi_Onroad_Passengercars_Fuelcombustion_N2O_2004.htm	23-Apr-09
Light-Duty Trucks, Distillate, CH4, 2004	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/docs1/1A3bii_Onroad_Light-DutyTrucks_Fuelcombustion_Distillate_CH4_2004.htm	23-Apr-09
Light-Duty Trucks, Distillate, N2O, 2004	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/docs1/1A3bii_Onroad_Light-DutyTrucks_Fuelcombustion_N2O_2004.htm	23-Apr-09
Heavy-Duty Vehicles, Distillate, CH4, 2004	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/docs1/1A3biii_Onroad_Heavy-DutyVehicles_Fuelcombustion_Distillate_CH4_2004.htm	23-Apr-09
Heavy-Duty Vehicles, Distillate, N2O, 2004	California Air Resources Board	http://www.arb.ca.gov/cc/inventory/doc/docs1/1A3biii_Onroad_Heavy-DutyVehicles_Fuelcombustion_N2O_2004.htm	23-Apr-09
Kohler Power 300REOZDD Industrial Generator	Kohler Power	http://www.kohlerpower.com/industrial/detail.htm?sectionNumber=13261&filter_1=Enclosures/Tank%20Packages&prodn	23-Apr-09
Kohler Power 25RZGB Industrial Generator	Kohler Power	http://www.kohlerpower.com/industrial/detail.htm?sectionNumber=13261&categoryNumber=12061&filter_1=60%20Hz&prodnum=124461	23-Apr-09

Notes

1. All CO2 Emissions (tons/year) presented in the Construction Equipment Calculations have been extracted from the URBEMIS output further described in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology
2. All vehicles and construction equipment were assumed to be diesel-powered for a worst-case scenario

Total Emissions												
	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2 Emissions (kg)	CH4 CO2 Emissions (kg)	N2O CO2 Emissions (metric tons)	CH4 CO2 Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)
ECO Substation Construction												
On-Road		1,000,151.71	1,000.15	98,537.11	32.71	29.86	10,141.44	626.99	10.14	0.63	1,010,920.14	1,010.92
2010	177.79											
2011	226.10											
2012	698.57											
On-Road - LD		2,077,406.35	2,077.41	204,670.58	67.95	40.12	21,064.70	842.42	21.06	0.84	2,099,313.47	2,099.31
2010	57.81											
2011	1,793.49											
2012	438.61											
Off-Road		3,351,623.18	3,351.62	330,209.18	85.85	191.52	26,614.86	4,021.95	26.61	4.02	3,382,259.99	3,382.26
2010	1,485.84											
2011	2,172.33											
2012	36.30											
Operation & Maintenance		1,156,235.47	1,156.24	113,914.82	37.82	34.52	11,724.11	724.84	11.72	0.72	1,168,684.43	1,168.68
On-Road	1,274.51											
2010 Construction Total	1,721.44											
2011 Construction Total	4,191.92											
2012 Construction Total	1,173.48											
Construction Total	7,086.84	6,429,181.25	6,429.18	633,416.67	186.52	261.49	57,821.00	5,491.36	57.82	5.49	6,492,493.61	6,492.49
Emission Rates												
ECO Substation Construction												
Generators (LPG)	47.03	42,673.93	42.67	n/a	0.41	2.03	125.67	42.57	0.13	0.04	42,842.16	42.84
On-Road	226.10	205,117.92	205.12	20,208.66	6.71	6.12	2,079.88	128.59	2.08	0.13	207,326.38	207.33
On-Road - LD	1,793.49	1,627,054.13	1,627.05	160,300.90	53.22	31.42	16,498.17	659.80	16.50	0.66	1,644,212.10	1,644.21
Off-Road	2,172.33	1,970,737.78	1,970.74	194,161.36	50.48	112.61	15,649.41	2,364.89	15.65	2.36	1,988,752.07	1,988.75
Construction Total	4,238.95	3,845,583.75	3,845.58	374,670.92	110.82	152.18	34,353.12	3,195.84	34.35	3.20	3,883,132.71	3,883.13
Operation & Maintenance	1,274.51	1,156,235.47	1,156.24	113,914.82	37.82	34.52	11,724.11	724.84	11.72	0.72	1,168,684.43	1,168.68

Total Emissions													
	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2E Emissions (kg)	CH4 CO2E Emissions (kg)	N2O CO2E Emissions (metric tons)	CH4 CO2E Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)	
SWPL Loop-In Construction	-	3,683.23	3.68	362.88	0.12	0.11	37.35	2.31	0.04	0.00	3,722.89	3.72	
On-Road 2010	-	6,187.10	6.19	609.57	0.20	0.12	62.74	2.51	0.06	0.00	6,252.35	6.25	
On-Road 2011	-	89,050.75	89.05	8,773.47	2.28	5.09	707.14	106.86	0.71	0.11	89,864.75	89.86	
On-Road 2012	4.06	98,921.09	98.92	9,745.92	2.60	5.32	807.23	111.68	0.81	0.11	99,839.99	99.84	
Off-Road - LD 2010	-	94,566.53	94.57	9,316.90	2.42	5.40	750.94	113.48	0.75	0.11	95,430.95	95.43	
Off-Road 2011	6.08	98.16	98.16										
Off-Road 2012	6.82												
Operation & Maintenance		48,136.03	48.14	4,742.47	1.57	1.44	488.09	30.18	0.49	0.03	48,654.30	48.65	
On-Road	53.06												
2010 Construction Total	-	6.55											
2011 Construction Total	109.04												
2012 Construction Total	115.59	104,863.25	104.86	10,331.35	2.76	5.64	855.35	118.47	0.86	0.12	105,837.07	105.84	
Emission Rates													
SWPL Loop-In Construction	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2E Emissions (kg)	CH4 CO2E Emissions (kg)	N2O CO2E Emissions (metric tons)	CH4 CO2E Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)	
On-Road Construction	4.06	3,683.23	3.68	362.88	0.12	0.11	37.35	2.31	0.04	0.00	3,722.89	3.72	
On-Road - LD	6.82	6,187.10	6.19	609.57	0.20	0.12	62.74	2.51	0.06	0.00	6,252.35	6.25	
Off-Road	98.16	89,050.75	89.05	8,773.47	2.28	5.09	707.14	106.86	0.71	0.11	89,864.75	89.86	
Construction Total	109.04	98,921.09	98.92	9,745.92	2.60	5.32	807.23	111.68	0.81	0.11	99,839.99	99.84	
Operation & Maintenance	53.06	48,136.03	48.14	4,742.47	1.57	1.44	488.09	30.18	0.49	0.03	48,654.30	48.65	

Total Emissions														
	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O Emissions (kg)	CH4 CO2 Emissions (kg)	N2O CO2 Emissions (kg)	CH4 CO2 Emissions (kg)	N2O CO2 Emissions (metric tons)	CH4 CO2 Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)
138 kV Transmission Line Construction														
On-Road	-	687,621.31	687.62	67,745.94	22.49	20.53	6,972.41	431.07	6.97	0.43	695,024.79	695.02		
2010	757.96													
2011	-													
2012	-													
On-Road - LD	-	446,260.75	446.26	43,966.58	14.60	8.62	4,525.04	180.97	4.53	0.18	450,966.76	450.97		
2010	-													
2011	491.91													
2012	-													
Off-Road	-	1,270,878.34	1,270.88	125,209.69	32.55	72.62	10,091.90	1,525.05	10.09	1.53	1,282,495.29	1,282.50		
2010	-													
2011	1,400.88													
2012	-													
Operation & Maintenance		498,098.16	498.10	49,073.71	16.29	14.87	5,050.67	312.26	5.05	0.31	503,461.08	503.46		
On-Road	549.05													
2010 Construction Total	-													
2011 Construction Total	2,650.75													
2012 Construction Total	-													
Construction Total	2,650.75	2,404,760.40	2,404.76	236,922.21	69.64	101.77	21,589.35	2,137.09	21.59	2.14	2,428,486.84	2,428.49		
Emission Rates														
138 kV Transmission Line Construction														
On-Road	757.96	687,621.31	687.62	67,745.94	22.49	20.53	6,972.41	431.07	6.97	0.43	695,024.79	695.02		
On-Road - LD	491.91	446,260.75	446.26	43,966.58	14.60	8.62	4,525.04	180.97	4.53	0.18	450,966.76	450.97		
Off-Road	1,400.88	1,270,878.34	1,270.88	125,209.69	32.55	72.62	10,091.90	1,525.05	10.09	1.53	1,282,495.29	1,282.50		
Construction Total	2,650.75	2,404,760.40	2,404.76	236,922.21	69.64	101.77	21,589.35	2,137.09	21.59	2.14	2,428,486.84	2,428.49		
Operation & Maintenance	549.05	498,098.16	498.10	49,073.71	16.29	14.87	5,050.67	312.26	5.05	0.31	503,461.08	503.46		

Total Emissions													
	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2E Emissions (kg)	CH4 CO2E Emissions (kg)	N2O CO2E Emissions (metric tons)	CH4 CO2E Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)	
Boulevard Substation Construction													
On-Road		259,250.54	259.25	25,541.93	8.48	7.74	2,628.77	162.52	2.63	0.16	262,041.84	262.04	
2010		-											
2011		261.75											
2012		24.02											
On-Road - LD		64,383.98	64.38	6,343.25	2.11	1.24	652.85	26.11	0.65	0.03	65,062.94	65.06	
2010		-											
2011		50.27											
2012		20.70											
Off-Road		620,570.16	620.57	61,139.92	15.90	35.46	4,927.88	744.68	4.93	0.74	626,242.72	626.24	
2010		-											
2011		603.78											
2012		80.27											
Operation & Maintenance		48,072.53	48.07	4,736.21	1.57	1.44	487.45	30.14	0.49	0.03	48,590.12	48.59	
On-Road		52.99											
2010 Construction Total		-											
2011 Construction Total		915.80											
2012 Construction Total		124.99											
Construction Total		1,040.79	944,204.69	944.20	26.48	44.44	8,209.50	933.32	8.21	0.93	953,347.50	953.35	
Emission Rates													
	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2E Emissions (kg)	CH4 CO2E Emissions (kg)	N2O CO2E Emissions (metric tons)	CH4 CO2E Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)	
Boulevard Substation Construction													
On-Road	261.75	237,459.60	237.46	23,395.03	7.77	7.09	2,407.82	148.86	2.41	0.15	240,016.28	240.02	
On-Road - LD	50.27	45,604.94	45.60	4,493.10	1.49	0.88	462.43	18.49	0.46	0.02	46,085.87	46.09	
Off-Road	603.78	547,749.22	547.75	53,965.44	14.03	31.30	4,349.61	657.30	4.35	0.66	552,756.13	552.76	
Construction Total	915.80	830,813.76	830.81	81,853.57	23.29	39.27	7,219.86	824.66	7.22	0.82	838,858.28	838.86	
Operation & Maintenance		48,072.53	48.07	4,736.21	1.57	1.44	487.45	30.14	0.49	0.03	48,590.12	48.59	

Total Emissions												
White Star Communication Facility												
Construction	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2 Emissions (kg)	CH4 CO2 Emissions (kg)	N2O CO2 Emissions (metric tons)	CH4 CO2 Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)
On-Road	0.07	63.50	0.06	6.26	0.00	0.00	0.64	0.04	0.00	0.00	64.19	0.06
2010												
2011	-											
2012	-											
On-Road - LD	6.78	6,450.82	6.15	605.99	0.20	0.12	62.37	2.49	0.06	0.00	6,215.68	6.22
2010												
2011	-											
2012	-											
Off-Road	302.05	274,019.76	274.02	26,997.02	7.02	15.66	2,175.96	328.82	2.18	0.33	276,524.54	276.52
2010												
2011	-											
2012	-											
Operation & Maintenance												
On-Road	0.14	127.01	0.13	12.51	0.00	0.00	1.29	0.08	0.00	0.00	128.38	0.13
2010 Construction Total	308.90											
2011 Construction Total	-											
2012 Construction Total	-											
Construction Total	308.90	280,234.08	280.23	27,609.27	7.22	15.78	2,238.97	331.36	2.24	0.33	282,804.41	282.80
Emission Rates												
White Star Communication Facility												
Construction	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2 Emissions (kg)	CH4 CO2 Emissions (kg)	N2O CO2 Emissions (metric tons)	CH4 CO2 Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)
On-Road	0.07	63.50	0.06	6.26	0.00	0.00	0.64	0.04	0.00	0.00	64.19	0.06
On-Road - LD	6.78	6,450.82	6.15	605.99	0.20	0.12	62.37	2.49	0.06	0.00	6,215.68	6.22
Off-Road	302.05	274,019.76	274.02	26,997.02	7.02	15.66	2,175.96	328.82	2.18	0.33	276,524.54	276.52
Construction Total	308.90	280,234.08	280.23	27,609.27	7.22	15.78	2,238.97	331.36	2.24	0.33	282,804.41	282.80
Operation & Maintenance												
On-Road	0.14	127.01	0.13	12.51	0.00	0.00	1.29	0.08	0.00	0.00	128.38	0.13

