VOLUME 4

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

GREGORY CANYON LANDFILL

SAN DIEGO COUNTY, CALIFORNIA

TECHNICAL APPENDIX F

US Army Corps of Engineers®

December 2012

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TECHNICAL APPENDIX F

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San Diego County, California

APPENDIX F–AIR QUALITY AND GREENHOUSE GAS EMISSIONS

- Gregory Canyon Landfill Initial Construction Year Emissions, PCR Services Corporation, November 2012
- Gregory Canyon Landfill Initial Operational Year Emissions, PCR Services Corporation, November 2012
- Gregory Canyon Landfill Interim Operational Year Emissions, PCR Services Corporation, November 2012
- Gregory Canyon Landfill Future Interim Operational Year Emissions, PCR Services Corporation, November 2012
- Gregory Canyon Landfill Final Operational Year Emissions, PCR Services Corporation, November 2012
- Gregory Canyon Landfill Closure Year Emissions, PCR Services Corporation, November 2012
- Ancillary Structures CalEEMod Inputs
- Ancillary Structures CalEEMod Output- Summer
- Analysis of Solid Waste Vehicle Types and Disposal Facility Trippage in North San Diego County, R3 Consulting Group, Inc., July 2, 2012
- On-Road Truck Criteria and GHG Emissions
- Summary of Sycamore Canyon Criteria Emissions
- SCAQMD Total Emissions
- Volume V – Air Quality Impact Analysis of the Permit Application for the Gregory Canyon Landfill
- Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, Kleinfelder, September 14, 2010
- Air Quality, Health Risk, and Noise Technical Memorandum (Addendum to the Certified Final Environmental Impact Report for Gregory Canyon Landfill), Hagmann Environmental Services, LLC, April 2011

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San Diego County, California

- Air Quality, Health Risk, and Noise Technical Memorandum (Addendum to the Certified Final Environmental Impact Report for Gregory Canyon Landfill), PCR Services Corporation, December 2009
- Visibility Analysis, PCR Services Corporation, June 2002,
- Conformity Calculations, PCR Services Corporation, November 2012
- Off-Road Equipment GHG Emissions, PCR Services Corporation, October 2012
- Ancillary Structures GHG Emissions, PCR Services Corporation, November 2012
- Water GHG emissions, PCR Services Corporation, October 2012
- Landfill Gas with Flaring GHG Emissions, PCR Services, October 2012
- Summary of Sycamore Canyon GHG emissions, Environ, May 2012

Hourly Emissions for Initial Construction Year
Pounds per Hour (lb/hr)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Fill Haul Road[1]	Stockpile A Haul Road[1]	Stockpile B Haul Road[1]	Landfill Area Excavation	Soil Loading at Landfill Area	Soil Unloading at SPA	Soil Unloading at Fill Area	Stockpile A Wind Erosion	Stockpile B Wind Erosion	Landfill Area Wind Erosion	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Ancillary Construction	Restoration Activities	Total (lbs/hr)
PM_{10}	0.24	0.54	0.91	3.38	16.39	24.05	11.12	5.23	1.02	1.01	17.76	8.88	54.07	0.00	8.27	0.88	0.69	0.71	0.93	4.34	0.82	161.27
$PM_{2.5}$	0.11	0.11	0.23	0.90	4.78	6.17	0.66	0.04	0.16	0.16	2.66	1.33	8.11	0.00	0.48	0.13	0.10	0.19	0.34	2.82	0.45	29.93
ROG		0.000	0.019	0.064	2.018	0.016	0.128	0.073	0.027	0.010	2.609					0.000	0.000		0.255	22.338	1.214	28.77
CO		0.002	0.232	0.607	17.498	0.196	1.101	0.630	0.232	0.084					268.00	0.000	0.000		2.202	25.229	1.506	317.52
Nox		0.003	0.295	1.001	31.619	0.249	1.998	1.144	0.420	0.152					68.00	0.000	0.000		3.996	35.313	2.354	146.54
SO2		0.000	0.000	0.001	0.033	0.000	0.002	0.001	0.000	0.000					8.000	0.000	0.000		0.004	0.046	0.003	8.09
TACs																						
Acetone		8.99E-02			1.39E-01	1.09E-01																3.38E-01
Aluminum															1.74E-01							1.74E-01
Arsenic	4.78E-06	1.08E-05	1.80E-05	6.69E-05	3.07E-04	4.81E-04	2.21E-04	1.04E-04	2.02E-05	2.02E-05	3.55E-04	1.78E-04	1.08E-03	0.00E+00	1.24E-04	1.75E-05	1.38E-05	1.43E-05	1.61E-05			3.05E-03
Barium															9.93E-04							9.93E-04
Beryllium	2.39E-07	5.39E-07	9.00E-07	3.35E-06	1.54E-05	2.40E-05	1.11E-05	5.20E-06	1.01E-06	1.01E-06	1.78E-05	8.88E-06	5.41E-05	0.00E+00	8.27E-06	8.77E-07	6.92E-07	7.13E-07	8.07E-07			1.55E-04
Cadmium	2.39E-07	5.39E-07	9.00E-07	3.35E-06	1.54E-05	2.40E-05	1.11E-05	5.20E-06	1.01E-06	1.01E-06	1.78E-05	8.88E-06	5.41E-05	0.00E+00	8.27E-06	8.77E-07	6.92E-07	7.13E-07	8.07E-07			1.55E-04
Chromium (total)	1.20E-05	2.70E-05	4.50E-05	1.67E-04	7.69E-04	1.20E-03	5.53E-04	2.60E-04	5.05E-05	5.05E-05	8.88E-04	4.44E-04	2.70E-03	0.00E+00	3.81E-04	4.39E-05	3.46E-05	3.56E-05	4.04E-05			7.71E-03
Cobalt															1.49E-04							1.49E-04
Copper	2.39E-05	5.39E-05	9.00E-05	3.35E-04	1.54E-03	2.40E-03	1.11E-03	5.20E-04	1.01E-04	1.01E-04	1.78E-03	8.88E-04	5.41E-03	0.00E+00	7.78E-04	8.77E-05	6.92E-05	7.13E-05	8.07E-05			1.54E-02
Diesel Exhaust PM		1.26E-04	1.38E-02	3.55E-02	1.01E+00	1.17E-02	6.38E-02	3.65E-02	1.34E-02	4.84E-03						0.00E+00	0.00E+00	0.00E+00	1.28E-01			1.32E+00
Lead	1.20E-05	2.70E-05	4.50E-05	1.67E-04	7.69E-04	1.20E-03	5.53E-04	2.60E-04	5.05E-05	5.05E-05	8.88E-04	4.44E-04	2.70E-03	0.00E+00	2.48E-04	4.39E-05	3.46E-05	3.56E-05	4.04E-05			7.57E-03
Manganese	1.20E-04	2.70E-04	4.50E-04	1.67E-03	7.69E-03	1.20E-02	5.53E-03	2.60E-03	5.05E-04	5.05E-04	8.88E-03	4.44E-03	2.70E-02	0.00E+00	4.67E-03	4.39E-04	3.46E-04	3.56E-04	4.04E-04			7.79E-02
Mercury	1.20E-06	2.70E-06	4.50E-06	1.67E-05	7.69E-05	1.20E-04	5.53E-05	2.60E-05	5.05E-06	5.05E-06	8.88E-05	4.44E-05	2.70E-04	0.00E+00	0.00E+00	4.39E-06	3.46E-06	3.56E-06	4.04E-06			7.33E-04
Nickel	4.78E-06	1.08E-05	1.80E-05	6.69E-05	3.07E-04	4.81E-04	2.21E-04	1.04E-04	2.02E-05	2.02E-05	3.55E-04	1.78E-04	1.08E-03	0.00E+00	2.48E-04	1.75E-05	1.38E-05	1.43E-05	1.61E-05			3.18E-03
Selenium	1.20E-06	2.70E-06	4.50E-06	1.67E-05	7.69E-05	1.20E-04	5.53E-05	2.60E-05	5.05E-06	5.05E-06	8.88E-05	4.44E-05	2.70E-04	0.00E+00	8.27E-06	4.39E-06	3.46E-06	3.56E-06	4.04E-06			7.41E-04
Silica (crystalline)	2.39E-02	5.39E-02	9.00E-02	3.35E-01	1.54E+00	2.40E+00	1.11E+00	5.20E-01	1.01E-01	1.01E-01	1.78E+00	8.88E-01	5.41E+00	0.00E+00	8.27E-01	8.77E-02	6.92E-02	7.13E-02	8.07E-02			1.55E+01
Vinyl Acetate		1.88E-01			2.90E-01	2.28E-01																7.06E-01
Zinc	4.78E-05	1.08E-04	1.80E-04	6.69E-04	3.07E-03	4.81E-03	2.21E-03	1.04E-03	2.02E-04	2.02E-04	3.55E-03	1.78E-03	1.08E-02	0.00E+00	8.27E-04	1.75E-04	1.38E-04	1.43E-04	1.61E-04			3.01E-02
Total TAC	2.41E-02	3.32E-01	1.05E-01	3.73E-01	2.99E+00	2.78E+00	1.18E+00	5.61E-01	1.15E-01	1.07E-01	1.79E+00	8.96E-01	5.46E+00	0.00E+00	1.01E+00	8.85E-02	6.99E-02	7.19E-02	2.09E-01			1.82E+01

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Daily Emissions for Initial Construction Year

Daily Summary (lb/day)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Fill Haul Road[1]	Stockpile A Haul Road[1]	Stockpile B Haul Road[1]	Landfill Area Excavation	Soil Loading at Landfill Area	Soil Unloading at SPA	Soil Unloading at Fill Area	Stockpile A Wind Erosion	Stockpile B Wind Erosion	Landfill Area Wind Erosion	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	ANCILLARY CONSTRUCTION	RESTORATION ACTIVITIES	Total (lbs/day)
Fugitive PM_{10}	2.39	3.34	7.69	32.42	136.57	229.40	110.56	51.98	10.10	10.10	426.13	213.06	1,297.75	0.00	8.27	8.77	6.92	7.13	8.07	25.96	6.58	2,603.20
Exhaust PM_{10}		0.00	0.01	0.26	10.01	0.01	0.64	0.37	0.13	0.05						0.00	0.00		1.28	12.70		25.45
Total PM_{10}	2.39	3.34	7.71	32.68	146.57	229.41	111.20	52.35	10.23	10.15	426.13	213.06	1,297.75	0.00	8.27	8.77	6.92	7.13	9.35	38.66	6.58	2,628.65
Fugitive $PM_{2.5}$	0.17	0.13	1.98	8.52	35.72	60.33	5.92	0.00	1.51	1.51	63.92	31.96	194.66	0.00	0.48	1.32	1.04	1.91	2.17	13.81	3.63	430.68
Exhaust $PM_{2.5}$		0.00	0.01	0.26	10.01	0.01	0.64	0.37	0.13	0.05						0.00	0.00		1.28	12.69		25.44
Total $PM_{2.5}$	0.17	0.13	1.99	8.77	45.72	60.34	6.56	0.37	1.65	1.56	63.92	31.96	194.66	0.00	0.48	1.32	1.04	1.91	3.44	26.50	3.63	456.12
ROG		0.00	0.02	0.50	20.00	0.02	1.28	0.73	0.27	0.10						0.00	0.00		2.55	178.70	9.71	213.87
CO		0.00	0.23	4.40	172.75	0.20	11.01	6.30	2.32	0.84					268.00	0.00	0.00		22.02	201.83	12.05	701.95
NOx		0.00	0.29	7.89	313.35	0.25	19.98	11.44	4.20	1.52					68.00	0.00	0.00		39.96	282.50	18.83	768.21
SO2		0.00	0.00	0.01	0.32	0.00	0.02	0.01	0.00	0.00					8.00	0.00	0.00		0.04	0.37	0.02	8.80
TACs																						
Diesel Exhaust PM		1.26E-04	1.38E-02	3.55E-02	1.01E+00	1.17E-02	6.38E-02	3.65E-02	1.34E-02	4.84E-03												1.19E+00
Total TAC	0.00E+00	1.26E-04	1.38E-02	3.55E-02	1.01E+00	1.17E-02	6.38E-02	3.65E-02	1.34E-02	4.84E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-04	1.38E-04	1.43E-04	1.61E-04			1.19E+00

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Annual Emissions for Initial Construction Year
tons per Year (tpy), lb/yr (TACS)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Fill Haul Road[1]	Stockpile A Haul Road[1]	Stockpile B Haul Road[1]	Landfill Area Excavation	Soil Loading at Landfill Area	Soil Unloading at SPA	Soil Unloading at Fill Area	Stockpile A Wind Erosion	Stockpile B Wind Erosion	Landfill Area Wind Erosion	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Ancillary Construction	Restoration Activities	Total[2]
Fugitive PM10	0.37	0.48	1.18	1.61	18.30	14.07	10.18	4.79	1.37	0.49	2.23	1.11	6.79	0.03	0.16	0.54	0.43	0.85	1.24	0.28	0.06	66.5
Exhaust PM10		0.00	0.00	0.02	0.91	0.66	0.10	0.03	0.01	0.00						0.01	0.01		0.20	0.62	0.01	2.6
Total PM_{10}	0.37	0.48	1.18	1.64	19.21	14.73	10.28	4.82	1.38	0.50	2.23	1.11	6.79	0.03	0.16	0.55	0.44	0.85	1.44	0.90	0.07	69.1
Fugitive PM2.5	0.17	0.13	0.30	0.42	4.82	3.71	0.55	0.72	0.21	0.07	0.33	0.17	1.02	0.01	0.01	0.08	0.06	0.23	0.33	0.12	0.03	13.5
Exhaust PM2.5		0.00	0.00	0.02	0.91	0.66	0.10	0.03	0.01	0.00						0.01	0.01		0.20	0.62	0.01	2.6
Total $PM_{2.5}$	0.17	0.13	0.31	0.44	5.73	4.37	0.64	0.75	0.22	0.08	0.33	0.17	1.02	0.01	0.01	0.09	0.07	0.23	0.53	0.74	0.04	16.1
ROG		0.000	0.003	0.046	1.811	1.318	0.196	0.066	0.024	0.009						0.022	0.022		0.392	6.150	0.180	10.2
CO		0.000	0.036	0.410	15.645	11.384	1.690	0.570	0.210	0.076					5.90	0.190	0.190		3.380	9.210	0.250	49.1
NOx		0.000	0.045	0.728	28.370	20.641	3.067	1.035	0.380	0.137					1.50	0.345	0.345		6.134	12.410	0.330	75.5
SO2		0.000	0.000	0.001	0.029	0.021	0.003	0.001	0.000	0.000					0.18	0.000	0.000		0.006	0.010	0.003	0.3
TACs (lb/yr)																						
Acetone		2.57E+00			9.91E+00	6.24E+00																1.87E+01
Aluminum															3.34E-03							3.34E-03
Arsenic	1.47E-02	1.91E-02	4.72E-02	6.45E-02	7.32E-01	5.63E-01	4.07E-01	1.92E-01	5.47E-02	1.97E-02	8.91E-02	4.46E-02	2.71E-01	1.28E-03	2.38E-06	2.15E-02	1.70E-02	3.38E-02	4.96E-02			2.64E+00
Barium															1.91E-05							1.91E-05
Beryllium	7.34E-04	9.56E-04	2.36E-03	3.22E-03	3.66E-02	2.81E-02	2.04E-02	9.58E-03	2.73E-03	9.85E-04	4.46E-03	2.23E-03	1.36E-02	6.39E-05	1.59E-07	1.08E-03	8.50E-04	1.69E-03	2.48E-03			1.32E-01
Cadmium	7.34E-04	9.56E-04	2.36E-03	3.22E-03	3.66E-02	2.81E-02	2.04E-02	9.58E-03	2.73E-03	9.85E-04	4.46E-03	2.23E-03	1.36E-02	6.39E-05	1.59E-07	1.08E-03	8.50E-04	1.69E-03	2.48E-03			1.32E-01
Chromium (total)	3.67E-02	4.78E-02	1.18E-01	1.61E-01	1.83E+00	1.41E+00	1.02E+00	4.79E-01	1.37E-01	4.93E-02	2.23E-01	1.11E-01	6.79E-01	3.19E-03	7.31E-06	5.39E-02	4.25E-02	8.45E-02	1.24E-01			6.60E+00
Cobalt															2.86E-06							2.86E-06
Copper	7.34E-02	9.56E-02	2.36E-01	3.22E-01	3.66E+00	2.81E+00	2.04E+00	9.58E-01	2.73E-01	9.85E-02	4.46E-01	2.23E-01	1.36E+00	6.39E-03	1.49E-05	1.08E-01	8.50E-02	1.69E-01	2.48E-01			1.32E+01
Diesel Exhaust PM		3.86E-02	4.24E+00	4.76E+01	1.81E+03	1.32E+03	1.96E+02	6.61E+01	2.43E+01	8.75E+00						2.20E+01	2.20E+01	0.00E+00	3.92E+02			3.91E+03
Lead	3.67E-02	4.78E-02	1.18E-01	1.61E-01	1.83E+00	1.41E+00	1.02E+00	4.79E-01	1.37E-01	4.93E-02	2.23E-01	1.11E-01	6.79E-01	3.19E-03	4.77E-06	5.39E-02	4.25E-02	8.45E-02	1.24E-01			6.60E+00
Manganese	3.67E-01	4.78E-01	1.18E+00	1.61E+00	1.83E+01	1.41E+01	1.02E+01	4.79E+00	1.37E+00	4.93E-01	2.23E+00	1.11E+00	6.79E+00	3.19E-02	8.98E-05	5.39E-01	4.25E-01	8.45E-01	1.24E+00			6.60E+01
Mercury	3.67E-03	4.78E-03	1.18E-02	1.61E-02	1.83E-01	1.41E-01	1.02E-01	4.79E-02	1.37E-02	4.93E-03	2.23E-02	1.11E-02	6.79E-02	3.19E-04	0.00E+00	5.39E-03	4.25E-03	8.45E-03	1.24E-02			6.60E-01
Nickel	1.47E-02	1.91E-02	4.72E-02	6.45E-02	7.32E-01	5.63E-01	4.07E-01	1.92E-01	5.47E-02	1.97E-02	8.91E-02	4.46E-02	2.71E-01	1.28E-03	4.77E-06	2.15E-02	1.70E-02	3.38E-02	4.96E-02			2.64E+00
Selenium	3.67E-03	4.78E-03	1.18E-02	1.61E-02	1.83E-01	1.41E-01	1.02E-01	4.79E-02	1.37E-02	4.93E-03	2.23E-02	1.11E-02	6.79E-02	3.19E-04	1.59E-07	5.39E-03	4.25E-03	8.45E-03	1.24E-02			6.60E-01
Silica (crystalline)	7.34E+01	9.56E+01	2.36E+02	3.22E+02	3.66E+03	2.81E+03	2.04E+03	9.58E+02	2.73E+02	9.85E+01	4.46E+02	2.23E+02	1.36E+03	6.39E+00	1.59E-02	1.08E+02	8.50E+01	1.69E+02	2.48E+02			1.32E+04
Vinyl Acetate		5.37E+00			2.07E+01	1.30E+01																3.91E+01
Zinc	1.47E-01	1.91E-01	4.72E-01	6.45E-01	7.32E+00	5.63E+00	4.07E+00	1.92E+00	5.47E-01	1.97E-01	8.91E-01	4.46E-01	2.71E+00	1.28E-02	1.59E-05	2.15E-01	1.70E-01	3.38E-01	4.96E-01			2.64E+01
Total TAC	7.41E+01	1.04E+02	2.43E+02	3.73E+02	5.54E+03	4.18E+03	2.25E+03	1.03E+03	3.00E+02	1.08E+02	4.50E+02	2.25E+02	1.37E+03	6.45E+00	1.94E-02	1.31E+02	1.08E+02	1.71E+02	6.42E+02			1.73E+04

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.
Note: 2. The design feature requiring a minimum of 25% of on-site diesel equipment fleet be Tier 3 or better on an average annual basis was applied to the calculation of emissions from the construction of the landfill only, not to that from Ancillary Construction or Restoration Activities.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Construction Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Output (kW)	Operating Schedule	
						hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	168.8	10	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	168.8	10	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	79.5	10	307
Dozer	Excavation/ripping	357.1	0.540	192.8	144.6	10	307
Dozer	Clay Liner Installation	357.1	0.540	192.8	144.6	10	307
Compactor	Compacting Clay Liner	357.1	0.540	192.8	144.6	10	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[(2)] (g/bhp-hr)
100-174	2	0.22	0.22
175-299	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Source	Emission Factor (g/bhp-hr)					
	ROG	CO[1]	NOX	SO2	PM10	PM2.5
Scraper (Tractor Engine)	0.3	2.59	4.7	4.87E-03	0.15	0.15
Scraper (Scraper Engine)	0.3	2.59	4.7	4.87E-03	0.15	0.15
Grader	0.3	3.7	4.7	4.87E-03	0.22	0.22
Dozer	0.3	2.59	4.7	4.87E-03	0.15	0.15
Dozer	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.87E-03	0.15	0.15

1. Based on Tier 2 emission standards specified in USEPA's Emission Standards Reference Guide: Nonroad Compression-Ignition Engines -- Exhaust Emission Standards

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Scraper/Grader from Exc. to SPA	20.3	BCY/trip	271.0	trips/day	0.318	8.0
Scraper	Scraper/Grader from Exc. to Fill	20.3	BCY/trip	271.0	trips/day	0.040	1.0
Scraper	Scraper/Grader from LF to SPB	20.3	BCY/trip	82871.0	trips/yr	0.212	5.0
Grader	Haul Road Maintenance	--	--	2.140	miles/hr	0.285	1.0
Dozer	Excavation	900.0	BCY/hr	--	--	--	1.0
Dozer	Clay Liner Install	900.0	BCY/hr	--	--	--	1.0
Compactor	Liner Compaction	672.7	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Hourly emissions (lb/hr)					
		ROG	CO	Nox	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	2.083	17.986	32.639	0.034	1.042	1.042
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.073	0.631	1.145	0.001	0.037	0.037
Grader[1]	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	Clay Liner Installation	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Liner	0.128	1.101	1.998	0.002	0.064	0.064
	Diesel Equipment Exhaust Total	2.609	22.785	40.876	0.042	**1.321**	**1.321**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Construction Year

Emissions by Equipment

Source	Use	Daily Emissions (lb/day)					
		ROG	CO	Nox	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	20.833	179.861	326.389	0.338	10.417	10.417
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.731	6.310	11.450	0.012	0.365	0.365
Grader[1]	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation	1.275	11.011	19.981	0.021	0.638	0.638
Dozer	Clay Liner Installation	1.275	11.011	19.981	0.021	0.638	0.638
Compactor	Compacting Liner	1.275	11.011	19.981	0.021	0.638	0.638
	Diesel Equipment Exhaust Total	**25.460**	**220.067**	**398.879**	**0.413**	**12.747**	**12.747**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment

Source	Use	Annual Emissions (TPY)					
		ROG	CO	Nox	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	3.2	27.6	50.1	0.1	1.6	1.6
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.1	1.0	1.8	0.0	0.1	0.1
Grader[1]	Haul Road Maintenance	0.0	0.1	0.2	0.0	0.0	0.0
Dozer	Excavation	0.2	1.7	3.1	0.0	0.1	0.1
Dozer	Clay Liner Installation	0.2	1.7	3.1	0.0	0.1	0.1
Compactor	Compacting Liner	0.2	1.7	3.1	0.0	0.1	0.1
	Diesel Equipment Exhaust Total	**3.9**	**33.8**	**61.2**	**0.1**	**2.0**	**2.0**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area (Annual) with Implementation of Design Feature

Area	Diesel PM-10			Diesel PM-2.5		
	ROG	CO	Nox	SO2	PM10	PM2.5
Main UP	0.0	0.0	0.0	0.0	0.0	0.0
Main UPS	0.0	0.0	0.0	0.0	0.0	0.0
Fill Haul	0.0	0.4	0.7	0.0	0.0	0.0
SPA Haul	1.7	14.3	25.9	0.0	0.8	0.8
SPA Haul UNS	0.2	1.4	2.4	0.0	0.1	0.1
SPB Haul	1.2	10.2	18.4	0.0	0.6	0.6
SPB Haul UNS	0.1	1.2	2.2	0.0	0.1	0.1
LFEXCAV - Excavation	0.2	1.7	3.1	0.0	0.1	0.1
LFEXCAV - Soil Loading	0.066	0.570	1.035	0.001	0.033	0.033
SPAUN - SPA Unloading	0.024	0.210	0.380	0.000	0.012	0.012
SPBUN - SPB Unloading	0.022	0.190	0.345	0.000	0.011	0.011
FILLUN - Unloading at Fill Area	0.009	0.076	0.137	0.000	0.004	0.004
ROCKLOAD - Rock Loading	0.022	0.190	0.345	0.000	0.011	0.011
Clay Liner - Install	0.2	1.7	3.1	0.0	0.1	0.1
Clay Liner - Compaction	0.2	1.7	3.1	0.0	0.1	0.1
Diesel Equipment Exhaust Total	3.9	33.8	61.2	0.1	2.0	2.0

Note:

1. No daily or hourly travel on the SPB Haul road (except graders) is shown in this model year, since the worst case impacts were determined to be based on the daily material being hauled

Division of Emissions

Area	Scraper		Scraper		Grader	
	VMT/day	% of Emissions	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	--	--	58.14	26.9%
Main UPS	--	--	--	--	0.53	0.2%
Fill Haul	13.1	2.3%	4,007	1.3%	46.52	21.5%
SPA Haul	488.8	84.8%	150,075	50.0%	4.09	1.9%
SPA Haul UNS	45.3	7.9%	13,896	4.6%	58.14	26.9%
SPB Haul	0.0	0.0%	106,728	35.5%	2.58	1.2%
SPB Haul UNS	0.0	0.0%	12,556	4.2%	46.52	21.5%
SPAUN - SPA Unloading	7.2	1.2%	2,202	0.7%	--	--
SPBUN - SPB Unloading	0.0	0.0%	1,997	0.7%	--	--
FILLUN - Unloading at Fill Area	2.6	0.4%	794	0.3%	--	--
LFEXCAV - Excavation/Soil Loading	19.5	3.4%	5,992	2.0%	--	--
ROCKLOAD - Rock Loading	0.0	0.0%	1,997	0.7%	--	--
Totals	**576**	**100%**	**300,245**	**100.0%**	**216.52**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Initial Construction Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

				Toxic Emissions, CAS number, EF (ppmw)												
				Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM[3]
				7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source		**PM10 (lb/hr)**	**EF (ppmw)**	**20**	**1**	**1**	**50**	**100**	**50**	**500**	**5**	**20**	**5**	**100000**	**200**	**--**
Paved Main Road		0.239		4.78E-06	2.39E-07	2.39E-07	1.20E-05	2.39E-05	1.20E-05	1.20E-04	1.20E-06	4.78E-06	1.20E-06	2.39E-02	4.78E-05	0.00E+00
Unpaved Stabilized Main Road		0.539		1.08E-05	5.39E-07	5.39E-07	2.70E-05	5.39E-05	2.70E-05	2.70E-04	2.70E-06	1.08E-05	2.70E-06	5.39E-02	1.08E-04	1.26E-04
Unpaved Main Road		0.900		1.80E-05	9.00E-07	9.00E-07	4.50E-05	9.00E-05	4.50E-05	4.50E-04	4.50E-06	1.80E-05	4.50E-06	9.00E-02	1.80E-04	1.38E-02
Unpaved Fill Haul Road		3.347		6.69E-05	3.35E-06	3.35E-06	1.67E-04	3.35E-04	1.67E-04	1.67E-03	1.67E-05	6.69E-05	1.67E-05	3.35E-01	6.69E-04	3.55E-02
Stockpile A Haul Road		11.208		2.24E-04	1.12E-05	1.12E-05	5.60E-04	1.12E-03	5.60E-04	5.60E-03	5.60E-05	2.24E-04	5.60E-05	1.12E+00	2.24E-03	9.15E-01
Stockpile A Haul Road Ends	16.385	4.164		8.33E-05	4.16E-06	4.16E-06	2.08E-04	4.16E-04	2.08E-04	2.08E-03	2.08E-05	8.33E-05	2.08E-05	4.16E-01	8.33E-04	9.85E-02
Stockpile B Haul Road		15.910		3.18E-04	1.59E-05	1.59E-05	7.96E-04	1.59E-03	7.96E-04	7.96E-03	7.96E-05	3.18E-04	7.96E-05	1.59E+00	3.18E-03	6.11E-04
Stockpile B Haul Road Ends	2.41E+01	8.13		1.63E-04	8.13E-06	8.13E-06	4.07E-04	8.13E-04	4.07E-04	4.07E-03	4.07E-05	1.63E-04	4.07E-05	8.13E-01	1.63E-03	1.10E-02
Landfill Area Excavation		11.06		2.21E-04	1.11E-05	1.11E-05	5.53E-04	1.11E-03	5.53E-04	5.53E-03	5.53E-05	2.21E-04	5.53E-05	1.11E+00	2.21E-03	6.38E-02
Rock Crushing		0.71		1.43E-05	7.13E-07	7.13E-07	3.56E-05	7.13E-05	3.56E-05	3.56E-04	3.56E-06	1.43E-05	3.56E-06	7.13E-02	1.43E-04	0.00E+00
Clay Liner	9.35E-01	0.81		1.61E-05	8.07E-07	8.07E-07	4.04E-05	8.07E-05	4.04E-05	4.04E-04	4.04E-06	1.61E-05	4.04E-06	8.07E-02	1.61E-04	1.28E-01
Soil Loading at Landfill Area		5.20		1.04E-04	5.20E-06	5.20E-06	2.60E-04	5.20E-04	2.60E-04	2.60E-03	2.60E-05	1.04E-04	2.60E-05	5.20E-01	1.04E-03	3.65E-02
Soil Unloading at SPA		1.01		2.02E-05	1.01E-06	1.01E-06	5.05E-05	1.01E-04	5.05E-05	5.05E-04	5.05E-06	2.02E-05	5.05E-06	1.01E-01	2.02E-04	1.34E-02
Soil Unloading at Fill Area		1.01		2.02E-05	1.01E-06	1.01E-06	5.05E-05	1.01E-04	5.05E-05	5.05E-04	5.05E-06	2.02E-05	5.05E-06	1.01E-01	2.02E-04	4.84E-03
Stockpile A Wind Erosion		17.76		3.55E-04	1.78E-05	1.78E-05	8.88E-04	1.78E-03	8.88E-04	8.88E-03	8.88E-05	3.55E-04	8.88E-05	1.78E+00	3.55E-03	0.00E+00
Stockpile B Wind Erosion		8.88		1.78E-04	8.88E-06	8.88E-06	4.44E-04	8.88E-04	4.44E-04	4.44E-03	4.44E-05	1.78E-04	4.44E-05	8.88E-01	1.78E-03	0.00E+00
Landfill Area Wind Erosion		54.07		1.08E-03	5.41E-05	5.41E-05	2.70E-03	5.41E-03	2.70E-03	2.70E-02	2.70E-04	1.08E-03	2.70E-04	5.41E+00	1.08E-02	0.00E+00
Drilling		0.00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Loading Rock at Landfill		0.88		1.75E-05	8.77E-07	8.77E-07	4.39E-05	8.77E-05	4.39E-05	4.39E-04	4.39E-06	1.75E-05	4.39E-06	8.77E-02	1.75E-04	0.00E+00
Unloading Rock at SPB		0.69		1.38E-05	6.92E-07	6.92E-07	3.46E-05	6.92E-05	3.46E-05	3.46E-04	3.46E-06	1.38E-05	3.46E-06	6.92E-02	1.38E-04	0.00E+00
Total Hourly (lb/hr)		146.507		2.93E-03	1.47E-04	1.47E-04	7.33E-03	1.47E-02	7.33E-03	7.33E-02	7.33E-04	2.93E-03	7.33E-04	1.47E+01	2.93E-02	1.32E+00

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.
2. Blasting toxics are not included in these tables, since a different SDAPCD Calculation Method sheet will be used for blasting toxic emission factors.
3. Diesel emissions for loading and unloading areas accounted for in associated roadway segments.

Initial Construction Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

				Toxic Emissions, CAS number, EF (ppmw)												
				Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM[3]
				7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	PM10 (lb/yr)	PM10 (lb/yr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	0.4	734		1.47E-02	7.34E-04	7.34E-04	3.67E-02	7.34E-02	3.67E-02	3.67E-01	3.67E-03	1.47E-02	3.67E-03	7.34E+01	1.47E-01	0.00E+00
Unpaved Stabilized Main Road	0.5	956		1.91E-02	9.56E-04	9.56E-04	4.78E-02	9.56E-02	4.78E-02	4.78E-01	4.78E-03	1.91E-02	4.78E-03	9.56E+01	1.91E-01	3.86E-02
Unpaved Main Road	1.2	2,361		4.72E-02	2.36E-03	2.36E-03	1.18E-01	2.36E-01	1.18E-01	1.18E+00	1.18E-02	4.72E-02	1.18E-02	2.36E+02	4.72E-01	4.24E+00
Unpaved Fill Haul Road	1.6	3,223		6.45E-02	3.22E-03	3.22E-03	1.61E-01	3.22E-01	1.61E-01	1.61E+00	1.61E-02	6.45E-02	1.61E-02	3.22E+02	6.45E-01	4.76E+01
Stockpile A Haul Road	12.8	25,599		5.12E-01	2.56E-02	2.56E-02	1.28E+00	2.56E+00	1.28E+00	1.28E+01	1.28E-01	5.12E-01	1.28E-01	2.56E+03	5.12E+00	1.65E+03
Stockpile A Haul Road Ends	5.5	11,001		2.20E-01	1.10E-02	1.10E-02	5.50E-01	1.10E+00	5.50E-01	5.50E+00	5.50E-02	2.20E-01	5.50E-02	1.10E+03	2.20E+00	1.57E+02
Stockpile B Haul Road	9.1	18,205		3.64E-01	1.82E-02	1.82E-02	9.10E-01	1.82E+00	9.10E-01	9.10E+00	9.10E-02	3.64E-01	9.10E-02	1.82E+03	3.64E+00	1.18E+03
Stockpile B Haul Road Ends	5.0	9,929		1.99E-01	9.93E-03	9.93E-03	4.96E-01	9.93E-01	4.96E-01	4.96E+00	4.96E-02	1.99E-01	4.96E-02	9.93E+02	1.99E+00	1.42E+02
Landfill Area Excavation	10.2	20,366		4.07E-01	2.04E-02	2.04E-02	1.02E+00	2.04E+00	1.02E+00	1.02E+01	1.02E-01	4.07E-01	1.02E-01	2.04E+03	4.07E+00	1.96E+02
Rock Crushing	0.8	1,690		3.38E-02	1.69E-03	1.69E-03	8.45E-02	1.69E-01	8.45E-02	8.45E-01	8.45E-03	3.38E-02	8.45E-03	1.69E+02	3.38E-01	0.00E+00
Clay Liner	1.2	2,479		4.96E-02	2.48E-03	2.48E-03	1.24E-01	2.48E-01	1.24E-01	1.24E+00	1.24E-02	4.96E-02	1.24E-02	2.48E+02	4.96E-01	3.92E+02
Soil Loading at Landfill Area	4.8	9,575		1.92E-01	9.58E-03	9.58E-03	4.79E-01	9.58E-01	4.79E-01	4.79E+00	4.79E-02	1.92E-01	4.79E-02	9.58E+02	1.92E+00	6.61E+01
Soil Unloading at SPA	1.4	2,734		5.47E-02	2.73E-03	2.73E-03	1.37E-01	2.73E-01	1.37E-01	1.37E+00	1.37E-02	5.47E-02	1.37E-02	2.73E+02	5.47E-01	2.43E+01
Soil Unloading at Fill Area	0.5	985		1.97E-02	9.85E-04	9.85E-04	4.93E-02	9.85E-02	4.93E-02	4.93E-01	4.93E-03	1.97E-02	4.93E-03	9.85E+01	1.97E-01	8.75E+00
Stockpile A Wind Erosion	2.2	4,456		8.91E-02	4.46E-03	4.46E-03	2.23E-01	4.46E-01	2.23E-01	2.23E+00	2.23E-02	8.91E-02	2.23E-02	4.46E+02	8.91E-01	0.00E+00
Stockpile B Wind Erosion	1.1	2,228		4.46E-02	2.23E-03	2.23E-03	1.11E-01	2.23E-01	1.11E-01	1.11E+00	1.11E-02	4.46E-02	1.11E-02	2.23E+02	4.46E-01	0.00E+00
Landfill Area Wind Erosion	6.8	13,570		2.71E-01	1.36E-02	1.36E-02	6.79E-01	1.36E+00	6.79E-01	6.79E+00	6.79E-02	2.71E-01	6.79E-02	1.36E+03	2.71E+00	0.00E+00
Drilling	0.0	64		1.28E-03	6.39E-05	6.39E-05	3.19E-03	6.39E-03	3.19E-03	3.19E-02	3.19E-04	1.28E-03	3.19E-04	6.39E+00	1.28E-02	0.00E+00
Loading Rock at Landfill	0.5	1,077		2.15E-02	1.08E-03	1.08E-03	5.39E-02	1.08E-01	5.39E-02	5.39E-01	5.39E-03	2.15E-02	5.39E-03	1.08E+02	2.15E-01	2.20E+01
Unloading Rock at SPB	0.4	850		1.70E-02	8.50E-04	8.50E-04	4.25E-02	8.50E-02	4.25E-02	4.25E-01	4.25E-03	1.70E-02	4.25E-03	8.50E+01	1.70E-01	2.20E+01
Total Annual (lb/yr)				2.64E+00	1.32E-01	1.32E-01	6.60E+00	1.32E+01	6.60E+00	6.60E+01	6.60E-01	2.64E+00	6.60E-01	1.32E+04	2.64E+01	3.91E+03

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.
2. Blasting toxics are not included in these tables, since a different SDAPCD Calculation Method sheet will be used for blasting toxic emission factors.
3. Diesel emissions for loading and unloading areas accounted for in associated roadway segments.

Initial Construction Year Annual & Hourly Solitac (Road Mix-in and Sealer Application) Product Toxic Emissions (lb/yr & lb/hr)

									Toxic Emissions, CAS number, EF (ppmw)			
									Annual Emission (lb/yr)		Hourly Emission (lb/hr)	
									Acetone	Vinyl Acetate	Acetone	Vinyl Acetate
									67-64-1	108-05-4	67-64-1	108-05-4
Source	**One-Way Road Length (ft)**	**Road Width (ft)**	**Road Area (ft^2)**	**Soiltac Application for Mix-In (gal/ft^2 rd)**	**Soiltac Application for Quarterly Sealant (gal/ft^2 rd)**	**Total Soiltac Usage (gal)**	**Days of Application**	**EF (mg/L)**	**110**	**230**	**110**	**230**
Unpaved Stabilized Main Road (Initial Mix-In)	700	40	28,000	0.07		1,960.00	2		1.80E+00	3.76E+00	8.99E-02	1.88E-01
Unpaved Stabilized Main Road (Quarterly Sealant)	700	40	28,000		0.01	840			7.70E-01	1.61E+00		
Stockpile A Haul Road (Initial Mix-In)	5,400	20	108,000	0.07		7,560.00	5		6.93E+00	1.45E+01	1.39E-01	2.90E-01
Stockpile A Haul Road (Quarterly Sealant)	5,400	20	108,000		0.01	3,240			2.97E+00	6.21E+00		
Stockpile B Haul Road (Initial Mix-In)	3,400	20	68,000	0.07		4,760.00	4		4.37E+00	9.13E+00	1.09E-01	2.28E-01
Stockpile B Haul Road (Quarterly Sealant)	3,400	20	68,000		0.01	2,040			1.87E+00	3.91E+00		
Total									1.87E+01	3.91E+01	3.38E-01	7.06E-01

1) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for initial construction year as placed on an aerial overlay of the landfill area.

2) Soiltac application rate data (undiluted quantity) as provided by the manufacturer.

3) Application rate for soiltac initial mix-in is assumed no more than 0.5 acres per day. Sealant is applied quarterly (3 additional times after the first quarter initial mix-in). Since these activities do not occur at the same time, the hourly emissions are based on mix-In of product, since product application is greater and emissions will be higher than during quarterly sealant application.

4) Toxic emission factors as defined by a Solitac product test in 2004. According to the manufacturer, the product was contaminated by a residual product from another manufacturer when samples were collected from the tanker truck. The manufacturer performed more recent testing in 2010, where the product was taken directly from the manufacturing facility in glass bottles and VOCs, including acetone and vinyl acetate, were non-detect during lab testing.

Initial Construction Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

Toxic Emissions, CAS number, EF (ppmw)																
			Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc
			7429-90-5	7440-38-2	7440-39-3	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6
Source	PM10 (lb/hr)	EF (ppmw)	21,000	15	120	1	1	46	18	94	30	565	0	30	1	100,000	100
Blasting	8.27		1.74E-01	1.24E-04	9.93E-04	8.27E-06	8.27E-06	3.81E-04	1.49E-04	7.78E-04	2.48E-04	4.67E-03	0.00E+00	2.48E-04	8.27E-06	8.27E-01	8.27E-04
Total Hourly (lb/hr)			1.74E-01	1.24E-04	9.93E-04	8.27E-06	8.27E-06	3.81E-04	1.49E-04	7.78E-04	2.48E-04	4.67E-03	0.00E+00	2.48E-04	8.27E-06	8.27E-01	8.27E-04

Initial Construction Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

Toxic Emissions, CAS number, EF (ppmw)																
			Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc
			7429-90-5	7440-38-2	7440-39-3	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6
Source	PM10 (lb/yr)	EF (ppmw)	21,000	15	120	1	1	46	18	94	30	565	0	30	1	100,000	100
Blasting	0.2		3.34E-03	2.38E-06	1.91E-05	1.59E-07	1.59E-07	7.31E-06	2.86E-06	1.49E-05	4.77E-06	8.98E-05	0.00E+00	4.77E-06	1.59E-07	1.59E-02	1.59E-05
Total Annual (lb/yr)			3.34E-03	2.38E-06	1.91E-05	1.59E-07	1.59E-07	7.31E-06	2.86E-06	1.49E-05	4.77E-06	8.98E-05	0.00E+00	4.77E-06	1.59E-07	1.59E-02	1.59E-05

Notes:

1. Emission factors are based on SDAPCD Calculation Method D04 - Wet Drilling and Blasting Operations, Ammonium Nitrate with Fuel Oil, dated 8/25/99. This document contains APCD local test results, showing ppmw values for the compounds shown in these tables.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Construction Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	10	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	10	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	10	307
Dozer	Excavation/ripping	357.1	0.540	192.8	10	307
Dozer	Clay Liner Installation	357.1	0.540	192.8	10	307
Compactor	Compacting Clay Liner	357.1	0.540	192.8	10	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[(2)] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Scraper/Grader from Exc. to SPA	20.3	BCY/trip	271.0	trips/day	0.318	8.0
Scraper	Scraper/Grader from Exc. to Fill	20.3	BCY/trip	271.0	trips/day	0.040	1.0
Scraper	Scraper/Grader from LF to SPB	20.3	BCY/trip	82871.0	trips/yr	0.212	5.0
Grader	Haul Road Maintenance	--	--	2.140	miles/hr	0.285	1.0
Dozer	Excavation	900.0	BCY/hr	--	--	--	1.0
Dozer	Clay Liner Install	900.0	BCY/hr	--	--	--	1.0
Compactor	Liner Compaction	672.7	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Diesel PM-10			Diesel PM-2.5		
		lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	1.042	10.417	3,197.9	1.042	10.417	3,197.9
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.037	0.365	112.2	0.037	0.365	112.2
Grader[1]	Haul Road Maintenance	0.051	0.051	15.8	0.051	0.051	15.8
Dozer	Excavation	0.064	0.638	195.8	0.064	0.638	195.8
Dozer	Clay Liner Installation	0.064	0.638	195.8	0.064	0.638	195.8
Compactor	Compacting Liner	0.064	0.638	195.8	0.064	0.638	195.8
	Diesel Equipment Exhaust Total	**1.321**	**12.747**	**3,913.2**	**1.321**	**12.747**	**3,913.2**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area

Area	Diesel PM-10			Diesel PM-2.5		
	lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Main UP	0.014	0.014	4.2	0.014	0.014	4.2
Main UPS	0.0001	0.0001	0.0	0.0001	0.0001	0.0
Fill Haul	0.035	0.255	47.6	0.035	0.255	47.6
SPA Haul	0.915	9.145	1,654.8	0.915	9.145	1,654.8
SPA Haul UNS	0.098	0.860	157.4	0.098	0.860	157.4
SPB Haul	0.001	0.001	1,176.8	0.001	0.001	1,176.8
SPB Haul UNS	0.011	0.011	141.8	0.011	0.011	141.8
LFEXCAV - Excavation	0.064	0.638	195.8	0.064	0.638	195.8
LFEXCAV - Soil Loading	0.037	0.365	66.061	0.037	0.365	66.061
SPAUN - SPA Unloading	0.013	0.134	24.280	0.013	0.134	24.280
SPBUN - SPB Unloading	0.000	0.000	22.020	0.000	0.000	22.020
FILLUN - Unloading at Fill Area	0.005	0.048	8.751	0.005	0.048	8.751
ROCKLOAD - Rock Loading	0.000	0.000	22.020	0.000	0.000	22.020
Clay Liner - Install	0.064	0.638	195.8	0.064	0.638	195.8
Clay Liner - Compaction	0.064	0.638	195.8	0.064	0.638	195.8
Diesel Equipment Exhaust Total	1.321	12.747	3,913.2	1.321	12.747	3,913.2

Note:

1. No daily or hourly travel on the SPB Haul road (except graders) is shown in this model year, since the worst case impacts were determined to be based on the daily material being hauled to the Fill Haul road and the SPA haul road. Therefore, the SPA and Fill haul roads show the maximum amount of material hauled for emissions and emission impacts and SPB haul roads will show no emissions on an hourly or daily basis.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Construction Year

Division of Emissions

Area	Scraper		Scraper		Grader	
	VMT/day	% of Emissions	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	--	--	58.14	26.9%
Main UPS	--	--	--	--	0.53	0.2%
Fill Haul	13.1	2.3%	4,007	1.3%	46.52	21.5%
SPA Haul	488.8	84.8%	150,075	50.0%	4.09	1.9%
SPA Haul UNS	45.3	7.9%	13,896	4.6%	58.14	26.9%
SPB Haul	0.0	0.0%	106,728	35.5%	2.58	1.2%
SPB Haul UNS	0.0	0.0%	12,556	4.2%	46.52	21.5%
SPAUN - SPA Unloading	7.2	1.2%	2,202	0.7%	--	--
SPBUN - SPB Unloading	0.0	0.0%	1,997	0.7%	--	--
FILLUN - Unloading at Fill Area	2.6	0.4%	794	0.3%	--	--
LFEXCAV - Excavation/Soil Loading	19.5	3.4%	5,992	2.0%	--	--
ROCKLOAD - Rock Loading	0.0	0.0%	1,997	0.7%	--	--
Totals	**576**	**100%**	**300,245**	**100.0%**	**216.52**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Main Unpaved DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.014	0.014
Daily Emissions	lb/day	0.014	0.014
Annual Emissions	lb/year	4.237	4.237

Main Unpaved Stabilized DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0001	0.0001
Daily Emissions	lb/day	0.0001	0.0001
Annual Emissions	lb/year	0.039	0.039

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Construction Year

Fill Haul DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.035	0.035
Daily Emissions	lb/day	0.255	0.255
Annual Emissions	lb/year	47.565	47.565

SPA Haul DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.915	0.915
Daily Emissions	lb/day	9.145	9.145
Annual Emissions	lb/year	1654.828	1654.828

SPA Haul UNS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.098	0.098
Daily Emissions	lb/day	0.860	0.860
Annual Emissions	lb/year	157.436	157.436

SPB Haul DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.001	0.001
Daily Emissions	lb/day	0.001	0.001
Annual Emissions	lb/year	1176.830	1176.830

SPB Haul UNS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.011	0.011
Daily Emissions	lb/day	0.011	0.011
Annual Emissions	lb/year	141.815	141.815

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Construction Year

LFEXCAV - Excavation Soil & Loading DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.10	0.10
Daily Emissions	lb/day	1.00	1.00
Annual Emissions	lb/year	261.83	261.83

SPAUN - Unload at SPA DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.01	0.01
Daily Emissions	lb/day	0.13	0.13
Annual Emissions	lb/year	24.28	24.28

SPBUN - Unload at SPB DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	lb/year	22.02	22.02

FILLUN - Unload at Fill Area DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.05	0.05
Annual Emissions	lb/year	8.75	8.75

ROCKLOAD - Load Rock DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	lb/year	22.02	22.02

Clay Liner DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.13
Daily Emissions	lb/day	1.28	1.28
Annual Emissions	lb/year	391.53	391.53

GCLF Emissions from the Paved Main Road for Initial Construction Year

Paved Road equation from AP-42 (1/1995) Section 13.2.1 with additional speed factor[1]:

$EF=k(sL/2)^{0.65}(W/3)^{1.5}(S/SF)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value[2]
Emission Factor (EF)	lbs/VMT	0.016	0.007
Hours of Operation	hours/day	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)		0.016	0.0073
Silt Loading (sL)[3]	g/m^2	0.4	0.4
Average Vehicle Weight (W)	tons	15.7	15.7
Vehicle Mean Speed (S)	mph	7.5	7.5
Speed Factor (SF)	mph	32.5	32.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance[4]	feet	2,800
Trash per day	tons/day	0
Trash trucks per day	trucks/day	0
Other trucks per day[5]	trucks/day	145
Daily VMT	VMT/day	154

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.24	0.11
Daily Emissions	lb/day	2.39	1.09
Annual Emissions	ton/yr	0.37	0.17

Notes:

1) Paved road emission factor is calculated with the paved road equation in AP-42 Section 13.2.1 (1/1995), with an additional speed factor, where trucks travel an average of 7.5 mph, without control efficiency. However, measures such as sweeping and other track out controls will be employed.

2) The $PM_{2.5}$ emission factor is based on AP-42 Section 13.2.2, (1/1995), where the particle size multiplier, k value, in Table 13.2.1.3 is 0.0073 lb/VMT (Note: This value is more conservative than the new AP-42 Section 13.2.1 (1/2006), with a k value of 0.0024 lb/VMT).

3) Silt loading (sL) value is based on 95% control and the AP-42 Table 13.2.1-3 mean silt loading value of 7.4 g/m^2 for municipal solid waste landfills. Control will be achieved through a combination of sweeping, track-out programs, and other measures as necessary.

4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for year -2 as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day derived from 145 onsite trucks for construction activity in year -2, referenced from Volume IV - AEI Appendix F, October 2008.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Initial Construction Year

Truck Traffic

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2[(1)]:

$$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value[(2)]
Emission Factor (EF)	lbs/VMT	0.082	0.022
Hours of Operation	hours/day	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)		0.360	0.095
Silt Content (s)[(3)]	%	15	15
Average Vehicle Weight (W)	tons	15.7	15.7
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		8.4	8.4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		97%	97%

VMT Calculations	Units	Value
One way distance[(4)]	feet	700
Trash per day	tons/day	0
Trash trucks per day	trucks/day	0
Other trucks per day[(5)]	trucks/day	145
Daily VMT	VMT/day	38

$$E=EF \times VMT$$

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.31	0.08
Daily Emissions	lb/day	3.11	0.82
Annual Emissions	ton/yr	0.48	0.13

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for the initial construction year as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day derived from 145 onsite trucks for construction activity in the initial construction year, referenced from Volume IV - AEI Appendix F, October 2008.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9[(1)]:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance[(2)]	feet	700
Grader Passes[(3)]	pass/yr	4
Yearly VMT	VMT/yr	0.53

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.23	0.03
Daily Emissions	lb/day	0.23	0.03
Annual Emissions	ton/yr	0.0005	0.0001

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the initial construction year.
3) Emissions are based on grading the stabilized road once per quarter, when initial mix-in of Soiltac road stabilizer or Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unpaved Unstabilized Main Road for Initial Construction Year

Truck Traffic

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2[(1)]:

$$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value[(2)]
Emission Factor (EF)	lbs/VMT	0.273	0.072
Hours of Operation	hours/day	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)		0.360	0.095
Silt Content (s)[(3)]	%	15	15
Average Vehicle Weight (W)	tons	15.7	15.7
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		8.4	8.4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		90%	90%

VMT Calculations	Units	Value
One way distance[(4)]	feet	500
Trash per day	tons/day	0
Trash trucks per day	trucks/day	0
Trucks per day[(5)]	trucks/day	145
Daily VMT	VMT/day	27

$$E=EF \times VMT$$

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.74	0.19
Daily Emissions	lb/day	7.37	1.94
Annual Emissions	ton/yr	1.13	0.30

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for year -2 as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day derived from 145 onsite trucks for construction activity in Initial Construction year, referenced from Volume IV - AEI Appendix F, October 2008.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Unstabilized Main Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9[1]:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance[2]	feet	500
Grader Passes[3]	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.02
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	ton/yr	0.05	0.01

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Unstabilized Fill Area Haul Road for Initial Construction Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2[(1)]:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value[(2)]
Emission Factor (EF)	lbs/VMT	0.784	0.207
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Silt Content (s)[(3)]	%	20.7	20.7
Average Vehicle Weight (W)	tons	76	76
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		4	4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		90%	90%

VMT Calculations	Units	Value
One way distance[(4)]	feet	400
Average load	CY/scraper	20.3
Scrapers per day[(5)]	scraper/day	246
Other scrapers per day	scraper/day	25
Daily Soil	CY/day	5,000
Daily VMT	VMT/day	41
Scrapers per year	scraper/year	24,039
Other scrapers per year	scraper/year	2,404
Annual Soil	CY/year	488,000
Annual VMT	VMT/year	4,007

$E=EF \times VMT$

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.22	0.85
Daily Emissions	lb/day	32.16	8.49
Annual Emissions	ton/yr	1.57	0.41

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

3) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unstabilized Fill Area Haul Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0

PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.004

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.

3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Stockpile A Haul Road for Initial Construction Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Silt Content (s)	%	15	15
Average Vehicle Weight (W)	tons	76	76
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		4	4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		97%	97%

VMT Calculations	Units	Value
One way distance	feet	5,400
Average load	CY/scraper	20.3
Scrapers per day	scraper/day	246
Other scrapers per day	scraper/day	25
Daily Soil	CY/day	5,000
Daily VMT	VMT/day	554
Scrapers per year	scraper/year	66,700
Other scrapers per year	scraper/year	6,670
Annual Soil	CY/year	1,354,000
Annual VMT	VMT/year	150,075

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	9.45	2.49
Daily Emissions	lb/day	94.47	24.93
Annual Emissions	ton/yr	12.80	3.38

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Stockpile A Haul Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	5,400
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	4.09

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.76	0.20
Daily Emissions	lb/day	1.76	0.20
Annual Emissions	ton/yr	0.004	0.000

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.
3) Emissions are based on grading the stabilized road once per quarter, when initial mix-in of Soiltac road stabilizer or Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Stockpile A Haul Road for Initial Construction Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.784	0.207
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Silt Content (s)	%	20.7	20.7
Average Vehicle Weight (W)	tons	76	76
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		4	4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		90%	90%

VMT Calculations	Units	Value
One way distance	feet	500
Average load	CY/scraper	20.3
Scrapers per day	scraper/day	246
Other scrapers per day	scraper/day	25
Daily Soil	CY/day	5,000
Daily VMT	VMT/day	51
Scrapers per year	scraper/year	66,700
Other scrapers per year	scraper/year	6,670
Annual Soil	CY/year	1,354,000
Annual VMT	VMT/year	13,896

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	4.00	1.06
Daily Emissions	lb/day	40.01	10.56
Annual Emissions	ton/yr	5.45	1.44

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

3) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

4) One way road distance was obtained by using approximately last 200 feet of each end of road.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unstabilized Stockpile A Haul Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	500
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.02
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	ton/yr	0.05	0.01

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by using approximately last 200 feet of each end of road.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Stockpile B Haul Road for Initial Construction Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Silt Content (s)	%	15	15
Average Vehicle Weight (W)	tons	76	76
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		4	4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		97%	97%

VMT Calculations	Units	Value
One way distance	feet	3,400
Average load (rock)	CY/scraper	16.3
Rock		
Scrapers per day		613
Other scrapers per day		61
Daily Rock	CY/day	10,000
Daily VMT	VMT/day	868
Scrapers per year		75,337
Other scrapers per year		7,534
Annual Rock	CY/year	1,228,000
Annual VMT	VMT/year	106,728

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	14.80	3.91
Daily Emissions	lb/day	148.02	39.06
Annual Emissions	ton/yr	9.10	2.40

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

7) No daily or hourly travel on the SPB Haul road is shown in this model year, since the worst case impacts were determined to be based on the daily material being hauled to the Fill Haul road and the SPA haul road. Therefore, the SPA and Fill haul roads show the maximum amount of material hauled for emissions and emission impacts and SPB haul roads will show no emissions on an hourly or daily basis.

GCLF Emissions from the Stockpile B Haul Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	3,400
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	2.58

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.11	0.12
Daily Emissions	lb/day	1.11	0.12
Annual Emissions	ton/yr	0.00	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.
3) Emissions are based on grading the stabilized road once per quarter, when initial mix-in of Soiltac road stabilizer or Soiltac sealer is applied (four times per year).

GCLF Emissions from the Stockpile B Haul Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	3,400
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	2.58

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.11	0.12
Daily Emissions	lb/day	1.11	0.12
Annual Emissions	ton/yr	0.00	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Construction year.
3) Emissions are based on grading the stabilized road once per quarter, when initial mix-in of Soiltac road stabilizer or Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Stockpile B Haul Road for Initial Construction Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.784	0.207
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Silt Content (s)	%	20.7	20.7
Average Vehicle Weight (W)	tons	76	76
Vehicle Mean Speed (S)	mph	7.5	7.5
Number of Vehicle Wheels (w)		4	4
Days Annual Precip > 0.01 in (p)	days/year	40	40
Control Efficiency (e)		90%	90%

VMT Calculations	Units	Value
One way distance	feet	400
Average load (rock)	CY/scraper	16.3
Rock		
Scrapers per day		613
Other scrapers per day		61
Daily Rock	CY/day	10,000
Daily VMT	VMT/day	102
Scrapers per year		75,337
Other scrapers per year		7,534
Annual Rock	CY/year	1,228,000
Annual VMT	VMT/year	12,556

E=EF x VMT

E=Emissions (lbs/day)

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	8.00	2.11
Daily Emissions	lb/day	80.01	21.11
Annual Emissions	ton/yr	4.92	1.30

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

3) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

4) One way road distance was obtained by using approximately last 200 feet of each end of road.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

7) No daily or hourly travel on the SPB Haul road is shown in this model year, since the worst case impacts were determined to be based on the daily material being hauled to the Fill Haul road and the SPA haul road. Therefore, the SPA and Fill haul roads show the maximum amount of material hauled for emissions and emission impacts and SPB haul roads will show no emissions on an hourly or daily basis.

GCLF Emissions from the Unstabilized Stockpile B Haul Road for Initial Construction Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0

PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Hours of Operation	hours	10	10
Operational Days per Year	days/year	307	307
Scaling Factor (k)		0.60	0.031
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.004

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by using approximately last 200 feet of each end of road.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from Landfill Excavation for Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled soil	lbs/1000 BCY	15.29	0.819	0.15
Emission Factor, controlled soil	lbs/1000 BCY	11.06	0.592	
Hours of Operation	hours/day	10	10	
Operational Days per Year	days/year	307	307	
Daily Excavation volume (soil)	CY/day	10,000	10,000	
Annual Excavation volume (soil)	CY/year	1,842,000	1,842,000	

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	11.06	0.59
Daily Emissions	lb/day	110.56	5.92
Annual Emissions	ton/yr	10.18	0.55

	Uncontrolled	Controlled	
Landfill Cut (lbs/1000 BCY)	5.46	3.95	55%
Landfill Side Slope (lbs/1000 BCY)	27.31	19.74	45%

Notes:

1) Emission factors based on SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. Emission factor was adjusted to account for 20.7% silt and 6.71% moisture when uncontrolled and 8.46% moisture when controlled.. A silt value of 20.7% is derived for material originating from the landfill area. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

2) Excavation volumes are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to excavation.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Rock Crushing for Initial Construction Year

ROCK CRUSHING PLANT EMISSIONS CALCULATIONS

SOURCE DESCRIPTION	SOURCE TYPE	PROCESS RATE (tons/hr)	PM_{10} EMISSION FACTOR* (lbs/ton)	$PM_{2.5}$ EMISSION FACTOR** (lbs/ton)	EMISSION FACTOR TYPE	CONTROL EFFICIENCY	CALCULATED PM10 EMISSIONS (lbs/hr)	CALCULATED PM2.5 EMISSIONS (lbs/hr)	CALCULATED PM10 EMISSIONS (lbs/yr)	CALCULATED PM2.5 EMISSIONS (lbs/yr)
Front Loader to vibrating feeder	transfer point 1	400	1.40E-03	3.79E-04	dry transfer point		0.5600	0.1517	1065.2019	288.4922
Grizzly feeder to conveyor C-1	transfer point 2	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	36.5212	9.8912
Conveyor C-1 to stacker RS1	transfer point 3	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	36.5212	9.8912
Stacker RS1 to stockpile SP1	transfer point a	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	36.5212	9.8912
Grizzly feeder to jaw crusher	transfer point b	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	36.5212	9.8912
Jaw crusher	primary crushing	300	7.00E-04	1.00E-04	primary crushing with baghouse	97.5%	0.0053	0.0008	13.3150	1.9021
Jaw crusher to conveyor C-2	transfer point c	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	36.5212	9.8912
Conveyor C-2 to triple deck scree	transfer point d	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	36.5212	9.8912
Triple deck screen	process screen	300	8.40E-04	5.00E-05	process screen with baghouse	97.5%	0.0063	0.0004	15.9780	0.9511
Triple deck screen to conveyor C-	transfer point 4	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	36.5212	9.8912
Triple deck to conveyor C-3	transfer point e	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Conveyor C-5 to radial stacker RS	transfer point 5	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	36.5212	9.8912
Radial stacker RS2 to stockpile S	transfer point f	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	36.5212	9.8912
Conveyor C-3 to cone crusher	transfer point g	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Cone crusher CR2	process crushing	195	5.90E-04	1.00E-04	process crushing with baghouse	97.5%	0.0029	0.0005	11.2227	1.9021
Cone crusher to conveyor C-4	transfer point h	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Conveyor C-4 to triple deck scree	transfer point i	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Triple deck screen to conveyor C-	transfer point 6	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	36.5212	9.8912
Conveyor C-6 to stacker RS-3	transfer point 7	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	36.5212	9.8912
Stacker RS3 to stockpile	transfer point j	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	36.5212	9.8912
						Total:	**0.71**	**0.19**	**1690.06**	**451.51**

* Emission Factors for PM10 are from Mineral Industry Emission Calculations Policy Memo, dated April 9, 1996 (SDAPCD Emission Calculation Procedures Guidance Documents)

** Emission Factors for PM2.5 are not provided in the Mineral Industry Emission Calculations Policy Memo, dated April 9, 1996. Therefore, AP-42 Section 11.19.2 will be used for PM2.5 emission factors, dated Aug 2004.

where the following emission factors apply for crushers:

	PM10		PM2.5	
Primary crushing (+4 in materials)	7.00E-04	lbs/ton	1.00E-04	lbs/ton
Process crushing (-4 in materials) dry	2.40E-03	lbs/ton		lbs/ton
Process crushing (-4 in materials) wet	5.90E-04	lbs/ton	1.00E-04	lbs/ton
Fine crushing (<0.5 in materials) dry	1.50E-02	lbs/ton		lbs/ton
Fine crushing (<0.5 in materials) wet	2.00E-03	lbs/ton	7.00E-05	lbs/ton

with the following control efficiencies to be used with dry emission factors:

Water spray	50% control efficiency	50% control efficiency
Water spray with surfactant	75% control efficiency	75% control efficiency
Venting to fabric filter	95% control efficiency	95% control efficiency
Venting to insertable fabric filter	97.5% control efficicency	97.5% control efficicency

Volume to be crushed	507,239	CY/year
Density of Rock	1.5	ton/CY
Mass to be crushed	760,859	ton/year

GCLF Emissions from Rock Crushing for Initial Construction Year

and the following emission factors apply for screening:

Dry process screen	1.50E-02 lbs/ton	lbs/ton
Wet process screen	8.40E-04 lbs/ton	5.00E-05 lbs/ton
Dry fine screen	7.10E-02 lbs/ton	lbs/ton
Wet fine screen	2.10E-03 lbs/ton	lbs/ton

with the following control efficiencies to be used with dry emission factors:

Covered screen	50% control efficiency	50% control efficiency
Covered with central fabric filter	95% control efficiency	95% control efficiency
Covered with insertable fabric filter	97.5% control efficiency	97.5% control efficiency
Covered screen with water added	75% control efficiency	75% control efficiency
Covered screen with surfactant added	95% control efficiency	95% control efficiency

and the following emission factors apply for transfer points:

wet transfer point	4.80E-05 lbs/ton	1.30E-05 lbs/ton
dry transfer point	1.40E-03 lbs/ton	3.79E-04 lbs/ton

with the following control efficiencies to be used with dry emission factors:

enclosed transfer point	50% control efficiency	50% control efficiency
insertable fabric filter	97.5% control efficiency	97.5% control efficiency
central fabric filter	95% control efficiency	95% control efficiency
fogged, enclosed transfer point	75% control efficiency	75% control efficiency

Compliance with Rule 52

Rule 52 standard: 0.1 grain per dry standard cubic foot of exhaust gas

Equipment exhaust flow rate: 1,000 cfm (applicant's data)

Grain loading = (PM emission through filter oulet/hour)) x (1/exhaust flow rate in cfm)(1 hour/ 60 min) x (7000 grains/lb PM)

= 0.00061 grain/dscft

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.71	0.19
Daily Emissions	lb/day	7.13	1.91
Annual Emissions	ton/yr	0.85	0.23

GCLF Emissions from Clay Liner Installation for Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Clay Liner Side Slope Installation				
Emission Factor, uncontrolled	lbs/1000 CCY	24.39	6.74	0.28
Emission Factor, controlled	**lbs/1000 CCY**	**2.44**	**0.67**	
Emission Factor, uncontrolled	lbs/1000 tons	17.42	4.81	
Emission Factor, controlled	lbs/1000 tons	1.74	0.48	
Average Dozing Distance	feet	100	100	
Maximum Capacity	LCY/hr	850	850	
Wet Density, lb/BCY	lb/BCY	3500	3500	
Wet Density, lb/LCY	lb/LCY	2800	2800	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Adjusted Capacity, LCY/hr	LCY/hr	637.5	637.5	
Adjusted Capacity, BCY/hr	BCY/hr	510	510	
Adjusted Capacity, CCY/hr	CCY/hr	459	459	
Silt, %	%	90	90	
Moisture Content (Uncontrolled)		18	18	
Control Factor (Clay Material is Wet)	%	90	90	
Clay Liner Level (Floor) Installation				
Emission Factor, uncontrolled	lbs/1000 CCY	14.81	4.09	0.28
Emission Factor, controlled	**lbs/1000 CCY**	**1.48**	**0.41**	
Emission Factor, uncontrolled	lbs/1000 tons	10.58	2.92	
Emission Factor, controlled	lbs/1000 tons	1.06	0.29	
Average Dozing Distance	feet	50	50	
Maximum Capacity	LCY/hr	1400	1400	
Wet Density, lb/BCY	lb/BCY	3500	3500	
Wet Density, lb/LCY	lb/LCY	2800	2800	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Adjusted Capacity, LCY/hr	LCY/hr	1050.0	1050.0	
Adjusted Capacity, BCY/hr	BCY/hr	840	840	
Adjusted Capacity, CCY/hr	CCY/hr	756	756	
Silt, %	%	90	90	
Moisture Content (Uncontrolled)		18	18	
Control Factor (Clay Material is Wet)	%	90	90	

GCLF Emissions from Clay Liner Installation for Initial Construction Year

Liner Side Slope Compactor Travel				
Emission Factor, uncontrolled	lb/VMT	10.79	2.85	0.26
Emission Factor, controlled	lb/VMT	1.08	0.28	
Emission Factor, uncontrolled	lb/1,000 CCY	64.16	16.93	
Emission Factor, controlled	**lb/1,000 CCY**	**6.42**	**1.69**	
Emission Factor, uncontrolled	lb/1,000 tons	33.00	8.71	
Emission Factor, controlled	lb/1,000 tons	3.30	0.87	
Clay Liner Side Slope Compaction				
Emission Factor, uncontrolled	lb/1,000 CCY	16.64	4.60	0.28
Emission Factor, controlled	**lb/1,000 CCY**	**1.66**	**0.46**	
Emission Factor, uncontrolled	lb/1,000 tons	8.559	2.364	
Emission Factor, controlled	lb/1,000 tons	0.856	0.236	
Compactor Wt.	lb	72,200	72,200	
Lift Thickness (Compacted)	in	6	6	
Normal Operation Speed	mph	4	4	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	4	4	
Compactor Width per Pass	ft	8.6	8.6	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	3500	3500	
Wet Density	lb/LCY	2800	2800	
Wet Density	lb/CCY	3889	3889	
Material Volume Change	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Max Capacity	CCY/hr	673	673	
Adjusted Capacity	CCY/hr	673	673	
Silt	%	90	90	
Moisture Content, Uncontrolled	%	18	18	
Control Factor (Clay Material is Wet)	%	90	90	
Hours of Operation	hours	10	10	

GCLF Emissions from Clay Liner Installation for Initial Construction Year

Liner Level (Floor) Compactor Travel				
Emission Factor, uncontrolled	lb/VMT	10.79	2.85	0.26
Emission Factor, controlled	lb/VMT	1.08	0.28	
Emission Factor, uncontrolled	lb/1,000 CCY	64.16	16.93	
Emission Factor, controlled	**lb/1,000 CCY**	**6.42**	**1.69**	
Emission Factor, uncontrolled	lb/1,000 tons	33.00	8.71	
Emission Factor, controlled	lb/1,000 tons	3.30	0.87	
Clay Liner Level (Floor) Compaction				
Emission Factor, uncontrolled	lb/1,000 CCY	16.64	4.60	0.28
Emission Factor, controlled	**lb/1,000 CCY**	**1.66**	**0.46**	
Emission Factor, uncontrolled	lb/1,000 tons	8.559	2.364	
Emission Factor, controlled	lb/1,000 tons	0.856	0.236	
Compactor Wt.	lb	72,200	72,200	
Lift Thickness (Compacted)	in	6	6	
Normal Operation Speed	mph	4	4	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	4	4	
Compactor Width per Pass	ft	8.6	8.6	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	3500	3500	
Wet Density	lb/LCY	2800	2800	
Wet Density	lb/CCY	3889	3889	
Material Volume Change	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Max Capacity	CCY/hr	673	673	
Adjusted Capacity	CCY/hr	673	673	
Silt	%	90	90	
Moisture Content, Uncontrolled	%	18	18	
Control Factor (Clay Material is Wet)	%	90	90	
Hours of Operation	hours	10	10	
Liner Material Side Slope	CCY/yr	194,044	194,044	
Liner Material Level Floor	CCY/yr	45,765	45,765	

GCLF Emissions from Clay Liner Installation for Initial Construction Year

E=EF x CCY Clay x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 CCY)

Liner Clay Material = CCY Clay (CCY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Clay Liner Placement			
Hourly Emissions	lb/hour	0.81	0.22
Daily Emissions	lb/day	8.07	2.17
Annual Emissions	ton/yr	1.24	0.33

Notes:

1) Emission factors based on SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.
2) Load factors are from Caterpillar Performance Handbook, 33d edition, 2002, pg 26-4, liner--natural bed clay, rock--broken granite, soil--25% rock 75% soil
3) Compaction factors are from Army Field Manual FM 5-434, 1994, Table 1-1
4) Speed and number of passes from Army Field Manual FM 5-434, 1994, Table 11-3
5) Silt content for clay liners taken as maximum value for California sedimentary soil liners in EPA/530-SW-86-007-
6) Silt content of clay liner> 50% silt suitable for liners, Design of Lnadfills and Integrated Solid Waste Management, A. Bagchi, John Wiley & Sons, 2004, pg. 424.

GCLF Emissions from Drilling for Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor	lbs/ton	0.00008	1.481E-05	0.185
Operational Hours	hour/day	6	6	
Total Rock	CY/yr	532,400	532,400	
Total Rock (1/16 acre)	CY/day	0	0	
Total Rock (1/8 acre)	CY/day	0	0	
Total Rock (1/4 acre)	CY/day	0	0	
Total Rock (1/16 acre)	CY/hr	0	0	
Total Rock (1/8 acre)	CY/hr	0	0	
Total Rock (1/4 acre)	CY/hr	0	0	
Rock Density	ton/CY	1.5	1.5	

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions (1/16 acre)	lb/hour	0.00	0.00
Hourly Emissions (1/8 acre)	lb/hour	0.00	0.00
Hourly Emissions (1/4 acre)	lb/hour	0.00	0.00
Daily Emissions (1/16 acre)	lb/day	0.00	0.00
Daily Emissions (1/8 acre)	lb/day	0.00	0.00
Daily Emissions (1/4 acre)	lb/day	0.00	0.00
Annual Emissions	ton/year	0.03	0.01

E=EF x R x rd

E= Emissions (lbs/day)

EF = Emission Factor (lb/ton)

ER = Emission Rate (g/s or g/s-m^2)

R = Daily Rock (CY/day)

rd = Rock Density (ton/CY)

Notes:

1) Emission Factor referenced from AP-42 (1/1995) Table 11.19.2-2. wet drilling.

2) There is no $PM_{2.5}$ emission factor for wet drilling in AP-42 Section 11.19.2. Therefore, an equivalent $PM_{2.5}$ to PM_{10} ratio will be derived from a similar mechanical process. Table 11.19.2-2 in AP-42 (8/2004) lists a PM_{10} emission factor of 0.00054 lb/ton and a $PM_{2.5}$ emission factor of 0.00010 lb/ton for teritary rock crushing, resulting in a ratio of 0.185. This ratio will be applied for drilling.

3) No daily emissions from drilling are inlcuded in this AQIA, since the worst case day will include a blast and no drilling will occur during a day that blasting occurs.

GCLF Emissions from Blasting for Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF) 1/16 acre	lb/blast	1.03	0.06
Emission Factor (EF) 1/8 acre	lb/blast	2.93	0.17
Emission Factor (EF) 1/4 acre	lb/blast	8.27	0.48
Emission Factor (EF) 1/2 acre	lb/blast	23.40	1.35
Scaling Factor (k)	PM_x / TSP	0.52	0.03
Blasts per Day	blast/day	1	1
Blasts per Hour	blast/hr	1	1
Blasts per Year	blasts/year	65	65
Total Rock Blasted in Initial Construction Year	CY/yr	532,400	532,400

Parameter	Units	NOx Value	CO Value	SOx Value
Emission Factor (EF)	lb/ton ANFO	17	67	2

$PM\ EF = 0.000014 \times A^{1.5} \times k$

EF=Emission Factor (lb/blast)
A = Horizontal Blast Area (ft2)
k=Scaling factor (PMx / TSP)

Blast Data	Blast Depth (ft)	Horiz. Blast Area (acres/blast)	Horiz. Blast Area (ft^2/blast)		Blast Volume (CF/Blast)	Blast Volume (CY/Blast)	Number of Blasts per Year	Blast Rock Volume (CY/yr)	ANFO per Blast	Total ANFO per Year
Blast Type (1/16 acre)	30	0.0625	2,723		81,675	3,025	6	18,150	1	18,150
Blast Type (1/8 acre)	30	0.125	5,445		163,350	6,050	33	199,650	2	399,300
Blast Type (1/4 acre)	30	0.25	10,890		326,700	12,100	26	314,600	4	1,258,400
Blast Type (1/2 acre)	30	0.5	21,780		653,400	24,200	0	0	8	0
						Total:	**65**	**532,400**		1,675,850

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	Calculated Emissions	Units	NOx Value	CO Value	SOx Value
Emissions per Blast (1/4 acre)	lb/hour, lb/day	8.27	0.48	Emissions per Blast (1/4 acre)	lb/hour, lb/day	68.00	268.00	8.00
Annual Emissions	ton/year	0.16	0.01	Annual Emissions	ton/yr	1.5	6	0.2

E=EF x B

E= Emissions (lbs/day)
EF = Emission Factor (lb/blast)
ER = Emission Rate
B = Blasts per day

Notes:
1) Emission Factor equation from AP-42 (10/1998), Section 11.9.2.
2) Emission Factors for NOx, CO, and SOx are from AP-42 Section 13.3 - Explosives Detonation, dated 1/95, Table 13.3-1.
3) Maximum blast area assumed to be 1/4th of an acre, used for daily and hourly emissions. Annual blast rate assumes the total number of blasts per year and the weighted average size of the blast.
4) Scaling factors for PM_{10} and $PM_{2.5}$ from AP-42 (10/1998), Table 11.9.-1.
5) Hourly and daily emissions are the same as no more than one blast will occur on any given day.
6) Amount of rock to be blasted referenced from BAS drawing "Gregory Canyon Landfill Excavation Over 50 feet Deep".
7) Blasting volume is based on the blast depth and the horizontal blast areas, as defined in the GCLF AEI, Appendix F, dated October 2008.

GCLF Emissions from Soil Loading and Unloading in Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading Scraper at Landfill Area				
Emission Factor, uncontrolled	lbs/1000 BCY	39.44	5.92	0.15
Emission Factor, controlled	lbs/1000 BCY	5.20	0.78	
Unloading Scraper at Stockpile A, Stockpile B, and Fill Area				
Emission Factor, uncontrolled	lbs/1000 BCY	17.45	2.62	
Emission Factor, controlled	lbs/1000 BCY	2.02	0.30	
Hours of Operation	hours	10	10	
Operational Days per Year	days/year	307	307	
Max Daily Soil to SPA	CY/day	5,000	5,000	
Annual Soil to SPA	CY/year	1,354,000	1,354,000	
Max Daily Soil to Fill Area	CY/day	5,000	5,000	
Annual Soil to Fill Area	CY/year	488,000	488,000	

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading Scraper at Landfill Area			
Hourly Emissions	lb/hour	5.20	0.00
Daily Emissions	lb/day	51.98	0.00
Annual Emissions	ton/yr	4.79	0.7
Unloading Scraper at Stockpile A			
Hourly Emissions	lb/hour	1.01	0.15
Daily Emissions	lb/day	10.10	1.51
Annual Emissions	ton/yr	1.37	0.21
Unloading Scraper at Fill Area			
Hourly Emissions	lb/hour	1.01	0.15
Daily Emissions	lb/day	10.10	1.51
Annual Emissions	ton/yr	0.49	0.07

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09, using 20.7% silt and 6.71% moisture when uncontrolled and 8.46% moisture when controlled.

2) Soil parameters are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading for $PM_{2.5}$ emissions.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Rock Loading and Unloading in Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading at Landfill Area				
Emission Factor, uncontrolled	lbs/1000 BCY	7.44	1.12	0.15
Emission Factor, controlled	lbs/1000 BCY	0.88	0.13	
Unloading at Stockpile B				
Emission Factor, uncontrolled	lbs/1000 BCY	3.79	0.57	
Emission Factor, controlled	lbs/1000 BCY	0.69	0.10	
Hours of Operation	hours	10	10	
Max Daily Rock to SPB	CY/day	10,000	10,000	
Annual Rock to SPB	CY/year	1,228,000	1,228,000	

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading at Landfill Area			
Hourly Emissions	lb/hour	0.88	0.13
Daily Emissions	lb/day	8.77	1.32
Annual Emissions	tons/yr	0.54	0.08
Unloading at Stockpile B			
Hourly Emissions	lb/hour	0.692	0.104
Daily Emissions	lb/day	6.924	1.039
Annual Emissions	tons/yr	0.43	0.06

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) Rock volumes are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to loading/unloading activities for $PM_{2.5}$ emissions.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

5) No SPB loading/unloading is shown in this model year, since the worst case impacts were determined to be based on the daily material being hauled on the Fill Haul road and the SPA haul road. Therefore, the SPA and Fill haul loading/unloading show the maximum amount of material daily for emissions and emission impacts and SPB loading/unloading will show no emissions on an hourly or daily basis.

GCLF Emissions from Wind Erosion for Initial Construction Year

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Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.5376	30.3806	
Hours of Operation	hours/day	24		
Fraction of hours over threshold		0.029		
Disturbed area - SPA	acres	22		
Disturbed area - SPB	acres	11		
Disturbed area - Landfill	acres	67		

Calculated Emissions - SPA	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	17.76	2.66
Daily Emissions	lb/day	426.13	63.92
Annual Emissions	ton/yr	2.23	0.33

Calculated Emissions - SPB	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	8.88	1.33
Daily Emissions	lb/day	213.06	31.96
Annual Emissions	tons/year	1.11	0.17

Calculated Emissions - Landfill	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	54.07	8.11
Daily Emissions	lb/day	1,297.7	194.7
Annual Emissions	ton/year	6.79	1.02

E=EF x A

E= Emissions (lbs/day)

EF = Emission Factor (lb/acre-day)

A = Exposed Area (acres)

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) 22 acres disturbed area in Stockpile A assumes the entire stockpile area is disturbed. 67 acres disturbed area in the landfill assumes most of the Phase I landfill area would be disturbed during Year -2 landfill construction. 11 acres disturbed area in the Stockpile B area is for current year activity.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, k($PM_{2.5}$) = 0.2 and k(PM_{10}) = 0.5. In the 11/2006 version, k($PM_{2.5}$) = 0.075 and k(PM_{10}) = 0.5.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

GCLF Emissions from Fugitive Dust for Initial Construction Year

Construction, Ancillary Structures	Units	Size	Disturbed Area (acre)	PM_{10} Value	$PM_{2.5}$ Value
Admin Building	Acre	0.09	0.5	0.76	0.01
Maintenance Building	ksf	7	0.5	0.76	0.01
Paved Area	Acre	4.16	4	18.08	0.01
Access Roads	Acre	4	4	18.08	0.01
Fee Booths (2)	ksf	0.15	0		
Recyclable Goods Center	Acre	0.28	0.5	0.76	0.01
Household Hazardous Waste Storage Area	Acre	0.02	0.5	0.76	0.01
Concrete Containment Wall (Diesel Storage Tank Within)	ksf	0.2	0		
Equipment and Storage Area	Acre	0.56	0.5	0.76	0.01
Groundwater Treatment Facility	Acre	0.09	0.5	0.76	0.01
Leachate and Subdrain Collection System				0.76	
Holding Tanks	Acre	0.02	0.5		0.01
Visitor Check-In Station	Acre	0.02	0.5	0.76	0.01
Admin Parking & Visitor Parking	Acre	0.06	0.5	0.76	0.01
Flare Station	Acre	0.11	0.5	0.76	0.01
Water Tank Area	Acre	0.09	0.5	0.76	0.01

GCLF Emissions from Fugitive Dust for Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.5376	30.3806	
Hours of Operation	hours/day	24		
Fraction of hours over threshold		0.029		
Disturbed area - SPA	acres	22		
Disturbed area - SPB	acres	11		
Disturbed area - Landfill	acres	67		

Calculated Emissions - SPA	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	17.76	2.66
Daily Emissions	lb/day	426.13	63.92
Annual Emissions	ton/yr	2.23	0.33

Calculated Emissions - SPB	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	8.88	1.33
Daily Emissions	lb/day	213.06	31.96
Annual Emissions	tons/year	1.11	0.17

Calculated Emissions - Landfill	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	54.07	8.11
Daily Emissions	lb/day	1,297.7	194.7
Annual Emissions	ton/year	6.79	1.02

E=EF x A

E= Emissions (lbs/day)

EF = Emission Factor (lb/acre-day)

A = Exposed Area (acres)

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) 22 acres disturbed area in Stockpile A assumes the entire stockpile area is disturbed. 67 acres disturbed area in the landfill assumes most of the Phase I landfill area would be disturbed during Initial Construction Year landfill construction. 11 acres disturbed area in the Stockpile B area is for current year activity.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, $k(PM_{2.5}) = 0.2$ and $k(PM_{10}) = 0.5$. In the 11/2006 version, $k(PM_{2.5}) = 0.075$ and $k(PM_{10}) = 0.5$.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

GCLF Emissions from Exhaust for Initial Construction Year

Construction, Ancillary Structures	Units	Size	Disturbed Area (acre)	PM_{10} Value	$PM_{2.5}$ Value
Admin Building	Acre	0.09	0.5	1.40	1.40
Maintenance Building	ksf	7	0.5	1.40	1.40
Paved Area	Acre	4.16	4	4.62	4.62
Access Roads	Acre	4	4	4.62	4.62
Fee Booths (2)	ksf	0.15	0	<1	<1
Recyclable Goods Center	Acre	0.28	0.5	1.40	1.40
Household Hazardous Waste Storage Area	Acre	0.02	0.5	1.40	1.40
Concrete Containment Wall (Diesel Storage Tank Within)	ksf	0.2	0	<1	<1
Equipment and Storage Area	Acre	0.56	0.5	1.40	1.40
Groundwater Treatment Facility	Acre	0.09	0.5	1.40	1.40
Leachate and Subdrain Collection System Holding Tanks	Acre	0.02	0.5	1.40	1.40
Visitor Check-In Station	Acre	0.02	0.5	1.40	1.40
Admin Parking & Visitor Parking	Acre	0.06	0.5	1.40	1.40
Flare Station	Acre	0.11	0.5	1.40	1.40
Water Tank Area	Acre	0.09	0.5	1.40	1.40

GCLF Emissions from Exhaust for Initial Construction Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.5376	30.3806	
Hours of Operation	hours/day	24		
Fraction of hours over threshold		0.029		
Disturbed area - SPA	acres	22		
Disturbed area - SPB	acres	11		
Disturbed area - Landfill	acres	67		

Calculated Emissions - SPA	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	17.76	2.66
Daily Emissions	lb/day	426.13	63.92
Annual Emissions	ton/yr	2.23	0.33

Calculated Emissions - SPB	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	8.88	1.33
Daily Emissions	lb/day	213.06	31.96
Annual Emissions	tons/year	1.11	0.17

Calculated Emissions - Landfill	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	54.07	8.11
Daily Emissions	lb/day	1,297.7	194.7
Annual Emissions	ton/year	6.79	1.02

E=EF x A

E= Emissions (lbs/day)
EF = Emission Factor (lb/acre-day)
A = Exposed Area (acres)

Notes:
1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) 22 acres disturbed area in Stockpile A assumes the entire stockpile area is disturbed. 67 acres disturbed area in the landfill assumes most of the Phase I landfill area would be disturbed during Initial Construction Year landfill construction. 11 acres disturbed area in the Stockpile B area is for current year activity.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, $k(PM_{2.5})$ = 0.2 and $k(PM_{10})$ = 0.5. In the 11/2006 version, $k(PM_{2.5})$ = 0.075 and $k(PM_{10})$ = 0.5.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

Gregory Canyon Landfill Draft EIS
Habitat Restoration

Upland/transitional habitat (acres)	**166**	**Riparian habitat**	**6.5**	**Riparian habitat enhancement**	**75.6**	**Total**	**248.1**
Oak Woodland w/ Alluvial Scrub/Native Grassland	70.4	Southern Willow Creation Area Cottonwood	2.3				
Chaparral	14.3	Riparian Forest	4.2				
Native Grassland	2						
Coastal Sage Scrub	79.3						

		Unit	Southern Willow Scrub Creation Area (2.3 ac)	Cottonwood Riparian Forest Creation (4.2 ac)	Oak Woodland w/ Alluvial Scrub/Native Grassland (70.4	Chaparral Creation Area (14.3 ac)	Coastal Sage Scrub (79.3 ac)	Native Grassland Creation Area (2 ac)	Riverine Riparian Management (75.6 ac)	Total				
1.0 Initial and Capital Tasks and Costs										**hours**	**Days**	**Equipment**	**Hours/day**	**Acreage***
Soil Preparation	Rip or till soil as directed	hours	-	-	4	4	4	4		16	4	Excavator (2), Grader (2)	4	32
Organic debris removal	Remove weeds to landfill	hours	16	16	10	10	10	10	10	82	10	Rubber-Tired Loader (2)	8	164
Non-organic debris removal	Remove garbage to landfill	hours	16	16	10	10	10	10	10	82	10	Rubber-Tired Loader (2)	8	164
Revegetation	plant installation	hours	40	20	8		2			70	9	Tractor/LoaderBackhoe (2), Forklift (2)	8	140
Exotic Plant Control	herbicide application (tractor or backpack)	hours	16	16	16	16	16	16	14	110	14	Crawler Tractor (2)	8	55

*Using 0.5 acre/8-hr

Gregory Canyon Landfill Draft EIS
Habitat Restoration

Emissions in Pounds per Day

Land Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Soil Preparation On-Site	6.89	12.50	8.10	0.02	3.82	0.53	4.35	0.00	0.53	0.53
Soil Preparation Off-Site	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01
Debris Removal On-Site	9.56	17.88	10.81	0.02	5.42	0.62	6.04	2.98	0.62	3.60
Debris Removal Off-Site	0.15	0.95	1.24	0.00	0.51	0.02	0.54	0.00	0.02	0.03
Revegetation On-Site	6.11	13.90	11.21	0.02		0.78	0.78		0.78	0.78
Revegetation Off-Site	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01
Exotic Plant Control On-Site	5.36	9.06	6.84	0.01		0.55	0.55		0.55	0.55
Exotic Plant Control Off-Site	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01
Worst-Case Day (lb/day)	**9.71**	**18.83**	**12.05**	**0.02**	**5.93**	**0.78**	**6.58**	**2.98**	**0.78**	**3.63**

Emissions in Tons per Year

Land Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Soil Preparation On-Site	0.01	0.02	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Soil Preparation Off-Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Removal On-Site	0.10	0.18	0.11	0.00	0.05	0.01	0.06	0.03	0.01	0.04
Debris Removal Off-Site	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Revegetation On-Site	0.03	0.06	0.05	0.00		0.00	0.00		0.00	0.00
Revegetation Off-Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exotic Plant Control On-Site	0.04	0.06	0.05	0.00		0.00	0.00		0.00	0.00
Exotic Plant Control Off-Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual (tons/year)	**0.18**	**0.33**	**0.25**	**0.00**	**0.06**	**0.01**	**0.07**	**0.03**	**0.01**	**0.04**

Gregory Canyon Habitat Restoration

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
City Park	248.1	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - See Habitat Restoration

Off-road Equipment - See Habitat Restoration

Off-road Equipment - See Habitat Restoration

Off-road Equipment - See Habitat Restoration

Off-road Equipment - See Habitat Restoration

Trips and VMT - See Habitat Restoration

Grading - See Habitat Restoration

Construction Off-road Equipment Mitigation - Use Tier 2 engines; Water exposed area and unpaved roads at least twice daily (55 percent PM reduction)

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	3.14	26.09	11.50	0.03	12.56	1.08	13.64	6.63	1.08	7.71	0.00	2,558.96	0.00	0.28	0.00	2,564.77
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	9.71	18.84	12.06	0.03	5.93	0.79	6.58	2.99	0.79	3.63	0.00	2,558.96	0.00	0.28	0.00	2,564.77
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Soil Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.48	0.00	8.48	0.00	0.00	0.00						0.00
Off-Road	1.52	11.53	5.49	0.02		0.59	0.59		0.59	0.59		1,594.71		0.14		1,597.58
Total	**1.52**	**11.53**	**5.49**	**0.02**	**8.48**	**0.59**	**9.07**	**0.00**	**0.59**	**0.59**		**1,594.71**		**0.14**		**1,597.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.82	0.00	3.82	0.00	0.00	0.00						0.00
Off-Road	6.89	12.50	8.10	0.02		0.53	0.53		0.53	0.53	0.00	1,594.71		0.14		1,597.58
Total	**6.89**	**12.50**	**8.10**	**0.02**	**3.82**	**0.53**	**4.35**	**0.00**	**0.53**	**0.53**	**0.00**	**1,594.71**		**0.14**		**1,597.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

3.3 Debris Removal - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.04	0.00	12.04	6.62	0.00	6.62						0.00
Off-Road	2.99	25.14	8.45	0.02		1.06	1.06		1.06	1.06		2,363.28		0.27		2,368.87
Total	**2.99**	**25.14**	**8.45**	**0.02**	**12.04**	**1.06**	**13.10**	**6.62**	**1.06**	**7.68**		**2,363.28**		**0.27**		**2,368.87**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.09	0.89	0.62	0.00	0.38	0.02	0.40	0.00	0.02	0.02		93.26		0.00		93.36
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.15**	**0.95**	**1.24**	**0.00**	**0.51**	**0.02**	**0.54**	**0.00**	**0.02**	**0.03**		**195.68**		**0.01**		**195.91**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.42	0.00	5.42	2.98	0.00	2.98						0.00
Off-Road	9.56	17.88	10.81	0.02		0.62	0.62		0.62	0.62	0.00	2,363.28		0.27		2,368.87
Total	**9.56**	**17.88**	**10.81**	**0.02**	**5.42**	**0.62**	**6.04**	**2.98**	**0.62**	**3.60**	**0.00**	**2,363.28**		**0.27**		**2,368.87**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.09	0.89	0.62	0.00	0.38	0.02	0.40	0.00	0.02	0.02		93.26		0.00		93.36
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.15**	**0.95**	**1.24**	**0.00**	**0.51**	**0.02**	**0.54**	**0.00**	**0.02**	**0.03**		**195.68**		**0.01**		**195.91**

3.4 Revegetation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.84	12.94	10.88	0.02		0.87	0.87		0.87	0.87		1,721.39		0.16		1,724.83
Total	**1.84**	**12.94**	**10.88**	**0.02**		**0.87**	**0.87**		**0.87**	**0.87**		**1,721.39**		**0.16**		**1,724.83**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.11	13.90	11.21	0.02		0.78	0.78		0.78	0.78	0.00	1,721.39		0.16		1,724.83
Total	**6.11**	**13.90**	**11.21**	**0.02**		**0.78**	**0.78**		**0.78**	**0.78**	**0.00**	**1,721.39**		**0.16**		**1,724.83**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

3.5 Exotic Plant Control - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.94	11.63	7.69	0.01		1.00	1.00		1.00	1.00		1,051.06		0.17		1,054.71
Total	**1.94**	**11.63**	**7.69**	**0.01**		**1.00**	**1.00**		**1.00**	**1.00**		**1,051.06**		**0.17**		**1,054.71**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.36	9.06	6.84	0.01		0.55	0.55		0.55	0.55	0.00	1,051.06		0.17		1,054.71
Total	**5.36**	**9.06**	**6.84**	**0.01**		**0.55**	**0.55**		**0.55**	**0.55**	**0.00**	**1,051.06**		**0.17**		**1,054.71**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Gregory Canyon Habitat Restoration

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
City Park	248.1	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - See Restoration Activities Tasks and Hours

Off-road Equipment - See Habitat Restoration Tasks and Hours

Off-road Equipment - See Habitat Restoration Tasks and Hours

Off-road Equipment - See Habitat Restoration Tasks and Hours

Off-road Equipment - See Habitat Restoration Tasks and Hours

Trips and VMT - See Habitat Restoration Tasks and Hours

Grading - See Habitat Restoration Tasks and Hours

Construction Off-road Equipment Mitigation - Use Tier 2 engines; Water exposed area and unpaved roads at least twice daily (55 percent PM reduction)

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.06	0.42	0.22	0.00	0.14	0.02	0.17	0.07	0.02	0.09	0.00	40.91	40.91	0.00	0.00	41.00
Total	**0.06**	**0.42**	**0.22**	**0.00**	**0.14**	**0.02**	**0.17**	**0.07**	**0.02**	**0.09**	**0.00**	**40.91**	**40.91**	**0.00**	**0.00**	**41.00**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.18	0.34	0.24	0.00	0.07	0.02	0.08	0.03	0.02	0.05	0.00	40.91	40.91	0.00	0.00	41.00
Total	**0.18**	**0.34**	**0.24**	**0.00**	**0.07**	**0.02**	**0.08**	**0.03**	**0.02**	**0.05**	**0.00**	**40.91**	**40.91**	**0.00**	**0.00**	**41.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Soil Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00	0.00	2.89	2.89	0.00	0.00	2.90
Total	**0.00**	**0.02**	**0.01**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**2.89**	**2.89**	**0.00**	**0.00**	**2.90**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.17
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.17**	**0.17**	**0.00**	**0.00**	**0.17**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.89	2.89	0.00	0.00	2.90
Total	**0.01**	**0.02**	**0.02**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**2.89**	**2.89**	**0.00**	**0.00**	**2.90**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.17
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.17**	**0.17**	**0.00**	**0.00**	**0.17**

3.3 Debris Removal - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.12	0.00	0.12	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.25	0.08	0.00		0.01	0.01		0.01	0.01	0.00	21.43	21.43	0.00	0.00	21.48
Total	**0.03**	**0.25**	**0.08**	**0.00**	**0.12**	**0.01**	**0.13**	**0.07**	**0.01**	**0.08**	**0.00**	**21.43**	**21.43**	**0.00**	**0.00**	**21.48**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.83	0.00	0.00	0.83
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.00	0.00	0.87
Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.70**	**1.70**	**0.00**	**0.00**	**1.70**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.10	0.18	0.11	0.00		0.01	0.01		0.01	0.01	0.00	21.43	21.43	0.00	0.00	21.48
Total	**0.10**	**0.18**	**0.11**	**0.00**	**0.05**	**0.01**	**0.06**	**0.03**	**0.01**	**0.04**	**0.00**	**21.43**	**21.43**	**0.00**	**0.00**	**21.48**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.83	0.00	0.00	0.83
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.00	0.00	0.87
Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.70**	**1.70**	**0.00**	**0.00**	**1.70**

3.4 Revegetation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	7.03	7.03	0.00	0.00	7.04
Total	**0.01**	**0.06**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**7.03**	**7.03**	**0.00**	**0.00**	**7.04**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.39**	**0.39**	**0.00**	**0.00**	**0.39**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.03	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	7.03	7.03	0.00	0.00	7.04
Total	**0.03**	**0.06**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**7.03**	**7.03**	**0.00**	**0.00**	**7.04**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.39**	**0.39**	**0.00**	**0.00**	**0.39**

3.5 Exotic Plant Control - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.08	0.05	0.00		0.01	0.01		0.01	0.01	0.00	6.67	6.67	0.00	0.00	6.70
Total	**0.01**	**0.08**	**0.05**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**6.67**	**6.67**	**0.00**	**0.00**	**6.70**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.61	0.00	0.00	0.61
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.61**	**0.61**	**0.00**	**0.00**	**0.61**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	6.67	6.67	0.00	0.00	6.70
Total	**0.04**	**0.06**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**6.67**	**6.67**	**0.00**	**0.00**	**6.70**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.61	0.00	0.00	0.61
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.61**	**0.61**	**0.00**	**0.00**	**0.61**

Hourly Emissions for Initial Operational Year
Pounds per Hour (lb/hr)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Landfill DeCk Road(1)	Unpaved Fill Haul Road[1]	Unpaved Daily Cover Road(1)	Unpaved Stockpile B Haul Road(1)	Landfill Area Excavation	Soil Loading at Landfill Excavation Area	Soil Unloading at SPB	Soil Unloading at Fill Area	Soil Unloading and Compaction at Daily Cover	MSW Spreading and Compaction	Daily Cover Wind Erosion (Disturbed)	Stockpile B Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Undisturbed)	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Total (lbs/hr)
Fugitive PM_{10}	1.01	4.24	3.34	1.81	1.44	2.68	10.79	13.35	4.47	1.17	0.22	0.96	0.88	1.61	51.65	54.07	9.60	0.00	23.40	0.32	0.25	0.71	0.70	188.69
Exhaust PM_{10}		2.3E-04	9.4E-03	3.8E-03	8.1E-02	1.3E-01	1.5E+00	6.4E-02	3.9E-02	3.0E-02	0.0E+00	6.8E-02	1.3E-01							0.00	0.00		1.3E-01	2.22
Total PM_{10}	1.01	4.24	3.35	1.81	1.52	2.80	12.33	13.42	4.51	1.21	0.22	1.03	1.01	1.61	51.65	54.07	9.60	0.00	23.40	0.32	0.25	0.71	0.83	190.91
Fugitive $PM_{2.5}$	0.78	1.02	3.34	0.47	0.34	0.58	2.72	2.00	0.67	0.18	0.03	0.14	0.44	0.24	7.75	8.11	1.44	0.00	0.48	0.05	0.04	0.19	0.19	31.20
Exhaust $PM_{2.5}$		2.3E-04	9.4E-03	3.8E-03	8.1E-02	1.3E-01	1.5E+00	6.4E-02	3.9E-02	3.0E-02	0.0E+00	6.8E-02	1.3E-01							0.00	0.00		1.3E-01	2.22
Total $PM_{2.5}$	0.78	1.02	3.35	0.47	0.43	0.70	4.26	2.07	0.71	0.21	0.03	0.21	0.57	0.24	7.75	8.11	1.44	0.00	0.48	0.05	0.04	0.19	0.32	33.42
ROG		0.00	0.01	0.01	0.09	0.14	1.63	0.13	0.04	0.03	0.00	0.13	0.26							0.00	0.00		0.26	2.73
CO		0.00	0.16	0.06	0.84	1.33	14.11	1.10	0.36	0.28	0.00	1.14	2.20						536.00	0.00	0.00		2.20	559.79
NOX		0.00	0.20	0.08	1.40	2.19	25.60	2.00	0.64	0.50	0.00	2.08	4.00						136.00	0.00	0.00		4.00	178.69
SO2		0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00						16.00	0.00	0.00		0.00	16.04
TACs																								
Acetone		2.53E-01				--	--																	2.53E-01
Aluminum																			4.91E-01					4.91E-01
Arsenic	2.02E-05	8.47E-05	6.67E-05	3.62E-05	2.88E-05	5.35E-05	1.41E-04	2.67E-04	8.93E-05	2.35E-05	4.41E-06	1.93E-05	1.77E-05	3.23E-05	1.03E-03	1.08E-03	1.92E-04	1.72E-08	3.51E-04	6.38E-06	5.04E-06	1.43E-05	1.40E-05	3.58E-03
Barium																			2.81E-03					2.81E-03
Beryllium	1.01E-06	4.24E-06	3.34E-06	1.81E-06	1.44E-06	2.68E-06	7.04E-06	1.34E-05	4.47E-06	1.17E-06	2.20E-07	9.63E-07	8.85E-07	1.61E-06	5.17E-05	5.41E-05	9.60E-06	8.60E-10	2.34E-05	3.19E-07	2.52E-07	7.13E-07	7.01E-07	1.85E-04
Cadmium	1.01E-06	4.24E-06	3.34E-06	1.81E-06	1.44E-06	2.68E-06	7.04E-06	1.34E-05	4.47E-06	1.17E-06	2.20E-07	9.63E-07	8.85E-07	1.61E-06	5.17E-05	5.41E-05	9.60E-06	8.60E-10	2.34E-05	3.19E-07	2.52E-07	7.13E-07	7.01E-07	1.85E-04
Chromium (total)	5.05E-05	2.12E-04	1.67E-04	9.05E-05	7.20E-05	1.34E-04	3.52E-04	6.68E-04	2.23E-04	5.87E-05	1.10E-05	4.81E-05	4.42E-05	8.07E-05	2.58E-03	2.70E-03	4.80E-04	4.30E-08	1.08E-03	1.59E-05	1.26E-05	3.56E-05	3.51E-05	9.15E-03
Cobalt																			4.21E-04					4.21E-04
Copper	1.01E-04	4.24E-04	3.34E-04	1.81E-04	1.44E-04	2.68E-04	7.04E-04	1.34E-03	4.47E-04	1.17E-04	2.20E-05	9.63E-05	8.85E-05	1.61E-04	5.17E-03	5.41E-03	9.60E-04	8.60E-08	2.20E-03	3.19E-05	2.52E-05	7.13E-05	7.01E-05	1.84E-02
Diesel Exhaust PM		2.32E-04	9.38E-03	3.75E-03	8.06E-02	1.25E-01	1.54E+00	6.38E-02	3.89E-02	3.02E-02	0.00E+00	6.85E-02	1.28E-01							0.00E+00	0.00E+00		1.28E-01	2.22E+00
Lead	5.05E-05	2.12E-04	1.67E-04	9.05E-05	7.20E-05	1.34E-04	3.52E-04	6.68E-04	2.23E-04	5.87E-05	1.10E-05	4.81E-05	4.42E-05	8.07E-05	2.58E-03	2.70E-03	4.80E-04	4.30E-08	7.02E-04	1.59E-05	1.26E-05	3.56E-05	3.51E-05	8.78E-03
Manganese	5.05E-04	2.12E-03	1.67E-03	9.05E-04	7.20E-04	1.34E-03	3.52E-03	6.68E-03	2.23E-03	5.87E-04	1.10E-04	4.81E-04	4.42E-04	8.07E-04	2.58E-02	2.70E-02	4.80E-03	4.30E-07	1.32E-02	1.59E-04	1.26E-04	3.56E-04	3.51E-04	9.40E-02
Mercury	5.05E-06	2.12E-05	1.67E-05	9.05E-06	7.20E-06	1.34E-05	3.52E-05	6.68E-05	2.23E-05	5.87E-06	1.10E-06	4.81E-06	4.42E-06	8.07E-06	2.58E-04	2.70E-04	4.80E-05	4.30E-09	0.00E+00	1.59E-06	1.26E-06	3.56E-06	3.51E-06	8.08E-04
Nickel	2.02E-05	8.47E-05	6.67E-05	3.62E-05	2.88E-05	5.35E-05	1.41E-04	2.67E-04	8.93E-05	2.35E-05	4.41E-06	1.93E-05	1.77E-05	3.23E-05	1.03E-03	1.08E-03	1.92E-04	1.72E-08	7.02E-04	6.38E-06	5.04E-06	1.43E-05	1.40E-05	3.93E-03
Selenium	5.05E-06	2.12E-05	1.67E-05	9.05E-06	7.20E-06	1.34E-05	3.52E-05	6.68E-05	2.23E-05	5.87E-06	1.10E-06	4.81E-06	4.42E-06	8.07E-06	2.58E-04	2.70E-04	4.80E-05	4.30E-09	2.34E-05	1.59E-06	1.26E-06	3.56E-06	3.51E-06	8.31E-04
Silica (crystalline)	1.01E-01	4.24E-01	3.34E-01	1.81E-01	1.44E-01	2.68E-01	7.04E-01	1.34E+00	4.47E-01	1.17E-01	2.20E-02	9.63E-02	8.85E-02	1.61E-01	5.17E+00	5.41E+00	9.60E-01	8.60E-05	2.34E+00	3.19E-02	2.52E-02	7.13E-02	7.01E-02	1.85E+01
Vinyl Acetate		5.30E-01				--	--																	5.30E-01
Zinc	2.02E-04	8.47E-04	6.67E-04	3.62E-04	2.88E-04	5.35E-04	1.41E-03	2.67E-03	8.93E-04	2.35E-04	4.41E-05	1.93E-04	1.77E-04	3.23E-04	1.03E-02	1.08E-02	1.92E-03	1.72E-07	2.34E-03	6.38E-05	5.04E-05	1.43E-04	1.40E-04	3.46E-02
Total TAC	1.02E-01	1.21E+00	3.46E-01	1.87E-01	2.26E-01	3.96E-01	2.26E+00	1.41E+00	4.90E-01	1.49E-01	2.22E-02	1.66E-01	2.17E-01	1.63E-01	5.21E+00	5.46E+00	9.70E-01	8.68E-05	2.86E+00	3.22E-02	2.54E-02	7.19E-02	1.98E-01	2.22E+01

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Max Daily Emissions for Initial Operational Year
Pounds per Day (lb/day)

	Paved Main Road	Unpaved Stabilized Main Road(1)	Unpaved Main Road(1)	Unpaved Landfill Deck Road(1)	Unpaved Fill Haul Road(1)	Unpaved Daily Cover Road(1)	Unpaved Stockpile B Haul Road(1)	Landfill Area Excavation	Soil Loading at Landfill Excavation Area	Soil Unloading at SPB	Soil Unloading at Fill Area	Soil Unloading and Compaction at Daily Cover	MSW Spreading and Compaction	Daily Cover Wind Erosion (Disturbed)	Stockpile B Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Undisturbed)	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Total (lbs/day)
Fugitive PM_{10}	11.12	40.39	35.24	19.33	13.78	21.39	110.16	146.89	49.13	12.92	2.42	10.59	9.73	38.74	1,239.64	1,297.75	230.50	0.01	23.40	3.51	2.77	7.84	7.71	3,334.98
Exhaust PM_{10}		0.00	0.01	0.00	0.41	0.61	8.99	0.70	0.23	0.18	0.00	0.73	1.40							0.00	0.00		1.40	14.65
Total PM_{10}	11.12	40.39	35.25	19.33	14.18	22.00	119.14	147.59	49.36	13.10	2.42	11.32	11.14	38.74	1,239.64	1,297.75	230.50	0.01	23.40	3.51	2.77	7.84	9.12	3,349.63
Fugitive $PM_{2.5}$	5.07	10.56	9.25	5.08	3.57	5.45	28.94	22.03	7.37	1.94	0.36	1.06	4.88	5.81	185.95	194.66	34.57	0.00	0.48	0.53	0.42	2.10	2.07	532.16
Exhaust $PM_{2.5}$		0.00	0.01	0.00	0.41	0.61	8.99	0.70	0.23	0.18	0.00	0.73	1.40							0.00	0.00		1.40	14.65
Total $PM_{2.5}$	5.07	10.57	9.26	5.08	3.97	6.06	37.93	22.74	7.60	2.11	0.36	1.79	6.28	5.81	185.95	194.66	34.57	0.00	0.48	0.53	0.42	2.10	3.47	546.81
ROG		0.00	0.01	0.01	0.80	1.21	17.97	1.40	0.45	0.35	0.00	1.46	2.81							0.00	0.00		2.81	29.28
CO		0.00	0.16	0.06	7.00	10.54	155.16	12.11	3.91	3.04	0.00	12.58	24.22						536.00	0.00	0.00		24.22	789.01
NOx		0.00	0.20	0.08	12.58	18.90	281.56	21.98	7.09	5.51	0.00	22.84	43.96						136.00	0.00	0.00		43.96	594.66
SO2		0.00	0.00	0.00	0.01	0.02	0.29	0.02	0.01	0.01	0.00	0.02	0.05						16.00	0.00	0.00		0.05	16.48
TACs																								
Diesel Exhaust PM		2.32E-04	2.88E+00	1.15E+00																				
Total TAC	0.00E+00	2.32E-04	2.88E+00	1.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Annual Emissions for Initial Operational Year
tons/yr

	Paved Main Road	Unpaved Stabilized Main Road(1)	Unpaved Main Road(1)	Unpaved Landfill Deck Road(1)	Unpaved Fill Haul Road(1)	Unpaved Daily Cover Road(1)	Unpaved Stockpile B Haul Road(1)	Landfill Area Excavation	Soil Loading at Landfill Excavation Area	Soil Unloading at SPB	Soil Unloading at Fill Area	Soil Unloading and Compaction at Daily Cover	MSW Spreading and Compaction	Daily Cover Wind Erosion (Disturbed)	Stockpile B Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Undisturbed)	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Total (tons/yr)
Fugitive PM_{10}	1.71	6.11	5.41	2.97	1.14	1.36	20.67	13.59	4.81	1.45	0.19	0.64	1.49	0.20	6.48	6.79	1.21	0.00	0.01	0.54	0.43	0.85	1.18	79.21
Construction					1.14			13.59			0.19							0.00	0.01	0.54	0.43	0.85	1.18	17.93
Operation	1.71	6.11	5.41	2.97		1.36	20.67		4.81	1.45		0.64	1.49	0.20	6.48	6.79	1.21							61.28
Exhaust PM_{10}		0.00	0.00	0.00	0.05	0.14	2.65	0.11	0.05	0.04	0.01	0.11	0.22							0.04	0.04		0.22	3.67
Construction					0.05			0.11			0.01									0.04	0.04		0.22	0.45
Operation		0.00	0.00	0.00		0.14	2.65		0.05	0.04		0.11	0.22											3.22
Total PM_{10}	1.71	6.11	5.41	2.97	1.19	1.50	23.32	13.70	4.86	1.49	0.20	0.75	1.71	0.20	6.48	6.79	1.21	0.00	0.01	0.57	0.46	0.85	1.40	82.88
Construction					1.19			13.70			0.20							0.00	0.01	0.57	0.46	0.85	1.40	18.38
Operation	1.71	6.11	5.41	2.97		1.50	23.32		4.86	1.49		0.75	1.71	0.20	6.48	6.79	1.21							64.50
Fugitive $PM_{2.5}$	0.78	1.61	1.42	0.78	0.29	0.34	5.45	2.04	0.72	0.22	0.03	0.10	0.75	0.03	0.97	1.02	0.18	0.00	0.00	0.08	0.06	0.23	0.32	17.41
Construction					0.29			2.04			0.03							0.00	0.00	0.08	0.06	0.23	0.32	3.05
Operation	0.78	1.61	1.42	0.78		0.34	5.45		0.72	0.22		0.10	0.75	0.03	0.97	1.02	0.18							14.37
Exhaust $PM_{2.5}$		0.00	0.00	0.00	0.05	0.14	2.65	0.11	0.05	0.04	0.01	0.11	0.22							0.04	0.04		0.22	3.67
Construction					0.05			0.11			0.01									0.04	0.04		0.22	0.45
Operation		0.00	0.00	0.00		0.14	2.65		0.05	0.04		0.11	0.22											3.22
Total $PM_{2.5}$	0.78	1.61	1.42	0.78	0.34	0.48	8.10	2.15	0.77	0.26	0.03	0.21	0.96	0.03	0.97	1.02	0.18	0.00	0.00	0.12	0.10	0.23	0.53	21.08
Construction					0.34			2.15			0.03							0.00	0.00	0.12	0.10	0.23	0.53	3.50
Operation	0.78	1.61	1.42	0.78		0.48	8.10		0.77	0.26		0.21	0.96	0.03	0.97	1.02	0.18							17.59
ROG		0.00	0.00	0.00	0.12	0.19	2.76	0.22	0.07	0.05	0.00	0.22	0.43							0.00	0.00		0.43	4.49
Construction					0.12			0.22			0.00									0.00	0.00		0.43	0.77
Operation		0.00	0.00	0.00		0.19	2.76		0.07	0.05		0.22	0.43											3.72
CO		0.00	0.02	0.01	1.07	1.62	23.82	1.86	0.60	0.47	0.00	1.93	3.72						0.27	0.00	0.00		3.72	39.11
Construction					1.07			1.86			0.00								0.27	0.00	0.00		3.72	6.92
Operation		0.00	0.02	0.01		1.62	23.82		0.60	0.47		1.93	3.72											32.19
NOX		0.00	0.03	0.01	1.93	2.90	43.22	3.37	1.09	0.85	0.00	3.51	6.75						0.07	0.00	0.00		6.75	70.47
Construction					1.93			3.37			0.00								0.07	0.00	0.00		6.75	12.12
Operation		0.00	0.03	0.01		2.90	43.22		1.09	0.85		3.51	6.75											58.35
SO2		0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01						0.01	0.00	0.00		0.01	0.08
Construction					0.00			0.00			0.00								0.01	0.00	0.00		0.01	0.02
Operation		0.00	0.00	0.00		0.00	0.04		0.00	0.00		0.00	0.01											0.06
TACs (lbs/yr)																								
Acetone						2.38E+00	5.87E-01																	2.97E+00
Aluminum		2.79E+00																	2.46E-04					2.79E+00
Arsenic	3.41E-05		1.08E-04	5.93E-05	2.28E-05	2.72E-05	4.13E-04	2.72E-04	9.62E-05	2.90E-05	3.84E-06	1.28E-05	2.99E-05	4.05E-06	1.30E-04	1.36E-04	2.41E-05	2.90E-08	1.76E-07	1.08E-05	8.50E-06	1.69E-05	2.37E-05	1.46E-03
Barium		1.22E-04																	1.40E-06					1.24E-04
Beryllium	1.71E-06		5.41E-06	2.97E-06	1.14E-06	1.36E-06	2.07E-05	1.36E-05	4.81E-06	1.45E-06	1.92E-07	6.38E-07	1.49E-06	2.03E-07	6.48E-06	6.79E-06	1.21E-06	1.45E-09	1.17E-08	5.39E-07	4.25E-07	8.45E-07	1.18E-06	7.31E-05
Cadmium	1.71E-06	6.11E-06	5.41E-06	2.97E-06	1.14E-06	1.36E-06	2.07E-05	1.36E-05	4.81E-06	1.45E-06	1.92E-07	6.38E-07	1.49E-06	2.03E-07	6.48E-06	6.79E-06	1.21E-06	1.45E-09	1.17E-08	5.39E-07	4.25E-07	8.45E-07	1.18E-06	7.92E-05
Chromium (total)	8.53E-05	6.11E-06	2.71E-04	1.48E-04	5.70E-05	6.79E-05	1.03E-03	6.79E-04	2.40E-04	7.25E-05	9.59E-06	3.19E-05	7.47E-05	1.01E-05	3.24E-04	3.39E-04	6.03E-05	7.26E-08	5.38E-07	2.69E-05	2.13E-05	4.23E-05	5.92E-05	3.66E-03
Cobalt		3.05E-04																	2.11E-07					3.06E-04
Copper	1.71E-04		5.41E-04	2.97E-04	1.14E-04	1.36E-04	2.07E-03	1.36E-03	4.81E-04	1.45E-04	1.92E-05	6.38E-05	1.49E-04	2.03E-05	6.48E-04	6.79E-04	1.21E-04	1.45E-07	1.10E-06	5.39E-05	4.25E-05	8.45E-05	1.18E-04	7.31E-03
Diesel Exhaust PM	0.00E+00	6.11E-04	2.88E+00	1.15E+00	1.01E+02	2.84E+02	5.30E+03	2.15E+02	1.07E+02	8.29E+01	1.10E+01	2.28E+02	4.31E+02							7.09E+01	7.09E+01		4.31E+02	7.34E+03
Lead	8.53E-05	7.13E-02	2.71E-04	1.48E-04	5.70E-05	6.79E-05	1.03E-03	6.79E-04	2.40E-04	7.25E-05	9.59E-06	3.19E-05	7.47E-05	1.01E-05	3.24E-04	3.39E-04	6.03E-05	7.26E-08	3.51E-07	2.69E-05	2.13E-05	4.23E-05	5.92E-05	7.49E-02
Manganese	8.53E-04	3.05E-04	2.71E-03	1.48E-03	5.70E-04	6.79E-04	1.03E-02	6.79E-03	2.40E-03	7.25E-04	9.59E-05	3.19E-04	7.47E-04	1.01E-04	3.24E-03	3.39E-03	6.03E-04	7.26E-07	6.61E-06	2.69E-04	2.13E-04	4.23E-04	5.92E-04	3.69E-02
Mercury	8.53E-06	3.05E-03	2.71E-05	1.48E-05	5.70E-06	6.79E-06	1.03E-04	6.79E-05	2.40E-05	7.25E-06	9.59E-07	3.19E-06	7.47E-06	1.01E-06	3.24E-05	3.39E-05	6.03E-06	7.26E-09	0.00E+00	2.69E-06	2.13E-06	4.23E-06	5.92E-06	3.42E-03
Nickel	3.41E-05	3.05E-05	1.08E-04	5.93E-05	2.28E-05	2.72E-05	4.13E-04	2.72E-04	9.62E-05	2.90E-05	3.84E-06	1.28E-05	2.99E-05	4.05E-06	1.30E-04	1.36E-04	2.41E-05	2.90E-08	3.51E-07	1.08E-05	8.50E-06	1.69E-05	2.37E-05	1.49E-03
Selenium	8.53E-06	1.22E-04	2.71E-05	1.48E-05	5.70E-06	6.79E-06	1.03E-04	6.79E-05	2.40E-05	7.25E-06	9.59E-07	3.19E-06	7.47E-06	1.01E-06	3.24E-05	3.39E-05	6.03E-06	7.26E-09	1.17E-08	2.69E-06	2.13E-06	4.23E-06	5.92E-06	4.88E-04
Silica (crystalline)	1.71E-01	3.05E-05	5.41E-01	2.97E-01	1.14E-01	1.36E-01	2.07E+00	1.36E+00	4.81E-01	1.45E-01	1.92E-02	6.38E-02	1.49E-01	2.03E-02	6.48E-01	6.79E-01	1.21E-01	1.45E-04	1.17E-03	5.39E-02	4.25E-02	8.45E-02	1.18E-01	7.31E+00
Vinyl Acetate		6.11E-01				4.99E+00	1.23E+00																	6.82E+00
Zinc	3.41E-04	5.83E+00	1.08E-03	5.93E-04	2.28E-04	2.72E-04	4.13E-03	2.72E-03	9.62E-04	2.90E-04	3.84E-05	1.28E-04	2.99E-04	4.05E-05	1.30E-03	1.36E-03	2.41E-04	2.90E-07	1.17E-06	1.08E-04	8.50E-05	1.69E-04	2.37E-04	5.84E+00
Total TAC	1.72E-01	9.30E+00	3.43E+00	1.45E+00	1.01E+02	2.92E+02	5.31E+03	2.17E+02	1.07E+02	8.31E+01	1.10E+01	2.28E+02	4.31E+02	2.04E-02	6.54E-01	6.85E-01	1.22E-01	1.47E-04	1.43E-03	7.09E+01	7.09E+01	8.53E-02	4.31E+02	7.36E+03

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Initial Operational Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM[3]
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	PM10 (lb/hr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	1.011		2.02E-05	1.01E-06	1.01E-06	5.05E-05	1.01E-04	5.05E-05	5.05E-04	5.05E-06	2.02E-05	5.05E-06	1.01E-01	2.02E-04	0.00E+00
Unpaved Stabilized Main Road	4.235		8.47E-05	4.24E-06	4.24E-06	2.12E-04	4.24E-04	2.12E-04	2.12E-03	2.12E-05	8.47E-05	2.12E-05	4.24E-01	8.47E-04	2.32E-04
Unpaved Main Road	3.337		6.67E-05	3.34E-06	3.34E-06	1.67E-04	3.34E-04	1.67E-04	1.67E-03	1.67E-05	6.67E-05	1.67E-05	3.34E-01	6.67E-04	9.38E-03
Unpaved Landfill Deck Road	1.811		3.62E-05	1.81E-06	1.81E-06	9.05E-05	1.81E-04	9.05E-05	9.05E-04	9.05E-06	3.62E-05	9.05E-06	1.81E-01	3.62E-04	3.75E-03
Unpaved Fill Haul Road	1.439		2.88E-05	1.44E-06	1.44E-06	7.20E-05	1.44E-04	7.20E-05	7.20E-04	7.20E-06	2.88E-05	7.20E-06	1.44E-01	2.88E-04	8.06E-02
Daily Cover Haul Road	1.183		2.37E-05	1.18E-06	1.18E-06	5.92E-05	1.18E-04	5.92E-05	5.92E-04	5.92E-06	2.37E-05	5.92E-06	1.18E-01	2.37E-04	7.72E-02
Daily Cover Haul Road Ends	1.493		2.99E-05	1.49E-06	1.49E-06	7.47E-05	1.49E-04	7.47E-05	7.47E-04	7.47E-06	2.99E-05	7.47E-06	1.49E-01	2.99E-04	4.81E-02
Stockpile B Haul Road	4.261		8.52E-05	4.26E-06	4.26E-06	2.13E-04	4.26E-04	2.13E-04	2.13E-03	2.13E-05	8.52E-05	2.13E-05	4.26E-01	8.52E-04	9.41E-01
Stockpile B Haul Road Ends	2.78		5.56E-05	2.78E-06	2.78E-06	1.39E-04	2.78E-04	1.39E-04	1.39E-03	1.39E-05	5.56E-05	1.39E-05	2.78E-01	5.56E-04	1.55E-01
Stockpile B Haul Road Rock	1.53		3.06E-05	1.53E-06	1.53E-06	7.66E-05	1.53E-04	7.66E-05	7.66E-04	7.66E-06	3.06E-05	7.66E-06	1.53E-01	3.06E-04	3.26E-01
Stockpile B Haul Road Rock Ends	2.2110		4.42E-05	2.21E-06	2.21E-06	1.11E-04	2.21E-04	1.11E-04	1.11E-03	1.11E-05	4.42E-05	1.11E-05	2.21E-01	4.42E-04	1.23E-01
Landfill Area Excavation	13.35		2.67E-04	1.34E-05	1.34E-05	6.68E-04	1.34E-03	6.68E-04	6.68E-03	6.68E-05	2.67E-04	6.68E-05	1.34E+00	2.67E-03	6.38E-02
Soil Loading at Landfill Excavation Area	4.47		8.93E-05	4.47E-06	4.47E-06	2.23E-04	4.47E-04	2.23E-04	2.23E-03	2.23E-05	8.93E-05	2.23E-05	4.47E-01	8.93E-04	3.89E-02
Soil Unloading at SPB	1.17		2.35E-05	1.17E-06	1.17E-06	5.87E-05	1.17E-04	5.87E-05	5.87E-04	5.87E-06	2.35E-05	5.87E-06	1.17E-01	2.35E-04	3.02E-02
Soil Unloading at Fill Area	0.22		4.41E-06	2.20E-07	2.20E-07	1.10E-05	2.20E-05	1.10E-05	1.10E-04	1.10E-06	4.41E-06	1.10E-06	2.20E-02	4.41E-05	0.00E+00
Soil Unloading and Compaction at Daily Cover	0.96		1.93E-05	9.63E-07	9.63E-07	4.81E-05	9.63E-05	4.81E-05	4.81E-04	4.81E-06	1.93E-05	4.81E-06	9.63E-02	1.93E-04	6.85E-02
MSW Spreading and Compaction	0.88		1.77E-05	8.85E-07	8.85E-07	4.42E-05	8.85E-05	4.42E-05	4.42E-04	4.42E-06	1.77E-05	4.42E-06	8.85E-02	1.77E-04	1.28E-01
Daily Cover Wind Erosion	1.61		3.23E-05	1.61E-06	1.61E-06	8.07E-05	1.61E-04	8.07E-05	8.07E-04	8.07E-06	3.23E-05	8.07E-06	1.61E-01	3.23E-04	0.00E+00
SPB Wind Erosion	51.65		1.03E-03	5.17E-05	5.17E-05	2.58E-03	5.17E-03	2.58E-03	2.58E-02	2.58E-04	1.03E-03	2.58E-04	5.17E+00	1.03E-02	0.00E+00
Disturbed Landfill Wind Erosion	54.07		1.08E-03	5.41E-05	5.41E-05	2.70E-03	5.41E-03	2.70E-03	2.70E-02	2.70E-04	1.08E-03	2.70E-04	5.41E+00	1.08E-02	0.00E+00
Undisturbed Landfill Wind Erosion	9.60		1.92E-04	9.60E-06	9.60E-06	4.80E-04	9.60E-04	4.80E-04	4.80E-03	4.80E-05	1.92E-04	4.80E-05	9.60E-01	1.92E-03	0.00E+00
Drilling	0.00		1.72E-08	8.60E-10	8.60E-10	4.30E-08	8.60E-08	4.30E-08	4.30E-07	4.30E-09	1.72E-08	4.30E-09	8.60E-05	1.72E-07	0.00E+00
Loading Rock at Landfill	0.32		6.38E-06	3.19E-07	3.19E-07	1.59E-05	3.19E-05	1.59E-05	1.59E-04	1.59E-06	6.38E-06	1.59E-06	3.19E-02	6.38E-05	0.00E+00
Unloading Rock at SPB	0.25		5.04E-06	2.52E-07	2.52E-07	1.26E-05	2.52E-05	1.26E-05	1.26E-04	1.26E-06	5.04E-06	1.26E-06	2.52E-02	5.04E-05	0.00E+00
Rock Crushing	0.71		1.43E-05	7.13E-07	7.13E-07	3.56E-05	7.13E-05	3.56E-05	3.56E-04	3.56E-06	1.43E-05	3.56E-06	7.13E-02	1.43E-04	0.00E+00
Clay Liner	0.70		1.40E-05	7.01E-07	7.01E-07	3.51E-05	7.01E-05	3.51E-05	3.51E-04	3.51E-06	1.40E-05	3.51E-06	7.01E-02	1.40E-04	1.28E-01
Total Hourly (lb/hr)	165.287		3.31E-03	1.65E-04	1.65E-04	8.26E-03	1.65E-02	8.26E-03	8.26E-02	8.26E-04	3.31E-03	8.26E-04	1.65E+01	3.31E-02	2.22E+00

Notes:
1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.
2. Blasting toxics are not included in these tables, since a different SDAPCD Calculation Method sheet will be used for blasting toxic emission factors.

Initial Operational Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM[3]
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	PM10 (lb/yr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	1.7		3.41E-05	1.71E-06	1.71E-06	8.53E-05	1.71E-04	8.53E-05	8.53E-04	8.53E-06	3.41E-05	8.53E-06	1.71E-01	3.41E-04	0.00E+00
Unpaved Stabilized Main Road	6.1		1.22E-04	6.11E-06	6.11E-06	3.05E-04	6.11E-04	3.05E-04	3.05E-03	3.05E-05	1.22E-04	3.05E-05	6.11E-01	1.22E-03	7.13E-02
Unpaved Main Road	5.4		1.08E-04	5.41E-06	5.41E-06	2.71E-04	5.41E-04	2.71E-04	2.71E-03	2.71E-05	1.08E-04	2.71E-05	5.41E-01	1.08E-03	2.88E+00
Unpaved Landfill Deck Road	3.0		5.93E-05	2.97E-06	2.97E-06	1.48E-04	2.97E-04	1.48E-04	1.48E-03	1.48E-05	5.93E-05	1.48E-05	2.97E-01	5.93E-04	1.15E+00
Unpaved Fill Haul Road	1.1		2.28E-05	1.14E-06	1.14E-06	5.70E-05	1.14E-04	5.70E-05	5.70E-04	5.70E-06	2.28E-05	5.70E-06	1.14E-01	2.28E-04	1.01E+02
Daily Cover Haul Road	0.5		1.02E-05	5.09E-07	5.09E-07	2.54E-05	5.09E-05	2.54E-05	2.54E-04	2.54E-06	1.02E-05	2.54E-06	5.09E-02	1.02E-04	2.12E+02
Daily Cover Haul Road Ends	0.8		1.70E-05	8.49E-07	8.49E-07	4.25E-05	8.49E-05	4.25E-05	4.25E-04	4.25E-06	1.70E-05	4.25E-06	8.49E-02	1.70E-04	7.26E+01
Stockpile B Haul Road	8.4		1.68E-04	8.40E-06	8.40E-06	4.20E-04	8.40E-04	4.20E-04	4.20E-03	4.20E-05	1.68E-04	4.20E-05	8.40E-01	1.68E-03	3.49E+03
Stockpile B Haul Road Ends	6.4		1.29E-04	6.44E-06	6.44E-06	3.22E-04	6.44E-04	3.22E-04	3.22E-03	3.22E-05	1.29E-04	3.22E-05	6.44E-01	1.29E-03	5.82E+02
Stockpile B Haul Road Rock	2.1		4.28E-05	2.14E-06	2.14E-06	1.07E-04	2.14E-04	1.07E-04	1.07E-03	1.07E-05	4.28E-05	1.07E-05	2.14E-01	4.28E-04	8.91E+02
Stockpile B Haul Road Rock Ends	3.7		7.39E-05	3.69E-06	3.69E-06	1.85E-04	3.69E-04	1.85E-04	1.85E-03	1.85E-05	7.39E-05	1.85E-05	3.69E-01	7.39E-04	3.34E+02
Landfill Area Excavation	13.6		2.72E-04	1.36E-05	1.36E-05	6.79E-04	1.36E-03	6.79E-04	6.79E-03	6.79E-05	2.72E-04	6.79E-05	1.36E+00	2.72E-03	2.15E+02
Soil Loading at Landfill Excavation Area	4.8		9.62E-05	4.81E-06	4.81E-06	2.40E-04	4.81E-04	2.40E-04	2.40E-03	2.40E-05	9.62E-05	2.40E-05	4.81E-01	9.62E-04	1.07E+02
Soil Unloading at SPB	1.5		2.90E-05	1.45E-06	1.45E-06	7.25E-05	1.45E-04	7.25E-05	7.25E-04	7.25E-06	2.90E-05	7.25E-06	1.45E-01	2.90E-04	8.29E+01
Soil Unloading at Fill Area	0.2		3.84E-06	1.92E-07	1.92E-07	9.59E-06	1.92E-05	9.59E-06	9.59E-05	9.59E-07	3.84E-06	9.59E-07	1.92E-02	3.84E-05	1.10E+01
Soil Unloading and Compaction at Daily Cover	0.6		1.28E-05	6.38E-07	6.38E-07	3.19E-05	6.38E-05	3.19E-05	3.19E-04	3.19E-06	1.28E-05	3.19E-06	6.38E-02	1.28E-04	2.28E+02
MSW Spreading and Compaction	1.5		2.99E-05	1.49E-06	1.49E-06	7.47E-05	1.49E-04	7.47E-05	7.47E-04	7.47E-06	2.99E-05	7.47E-06	1.49E-01	2.99E-04	4.31E+02
Daily Cover Wind Erosion	0.2		4.05E-06	2.03E-07	2.03E-07	1.01E-05	2.03E-05	1.01E-05	1.01E-04	1.01E-06	4.05E-06	1.01E-06	2.03E-02	4.05E-05	0.00E+00
SPB Wind Erosion	6.5		1.30E-04	6.48E-06	6.48E-06	3.24E-04	6.48E-04	3.24E-04	3.24E-03	3.24E-05	1.30E-04	3.24E-05	6.48E-01	1.30E-03	0.00E+00
Disturbed Landfill Wind Erosion	6.8		1.36E-04	6.79E-06	6.79E-06	3.39E-04	6.79E-04	3.39E-04	3.39E-03	3.39E-05	1.36E-04	3.39E-05	6.79E-01	1.36E-03	0.00E+00
Undisturbed Landfill Wind Erosion	1.2		2.41E-05	1.21E-06	1.21E-06	6.03E-05	1.21E-04	6.03E-05	6.03E-04	6.03E-06	2.41E-05	6.03E-06	1.21E-01	2.41E-04	0.00E+00
Drilling	0.0		2.90E-08	1.45E-09	1.45E-09	7.26E-08	1.45E-07	7.26E-08	7.26E-07	7.26E-09	2.90E-08	7.26E-09	1.45E-04	2.90E-07	0.00E+00
Loading Rock at Landfill	0.5		1.08E-05	5.39E-07	5.39E-07	2.69E-05	5.39E-05	2.69E-05	2.69E-04	2.69E-06	1.08E-05	2.69E-06	5.39E-02	1.08E-04	7.09E+01
Unloading Rock at SPB	0.4		8.50E-06	4.25E-07	4.25E-07	2.13E-05	4.25E-05	2.13E-05	2.13E-04	2.13E-06	8.50E-06	2.13E-06	4.25E-02	8.50E-05	7.09E+01
Rock Crushing	0.8		1.69E-05	8.45E-07	8.45E-07	4.23E-05	8.45E-05	4.23E-05	4.23E-04	4.23E-06	1.69E-05	4.23E-06	8.45E-02	1.69E-04	0.00E+00
Clay Liner	1.2		2.37E-05	1.18E-06	1.18E-06	5.92E-05	1.18E-04	5.92E-05	5.92E-04	5.92E-06	2.37E-05	5.92E-06	1.18E-01	2.37E-04	4.31E+02
Total Annual (lb/yr)			1.58E-03	7.92E-05	7.92E-05	3.96E-03	7.92E-03	3.96E-03	3.96E-02	3.96E-04	1.58E-03	3.96E-04	7.92E+00	1.58E-02	7.34E+03

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.
2. Blasting toxics are not included in these tables, since a different SDAPCD Calculation Method sheet will be used for blasting toxic emission factors.

Initial Operational Year Annual & Hourly Solitac (Road Mix-in and Sealer Application) Product Toxic Emissions (lb/yr & lb/hr)

									Toxic Emissions, CAS number, EF (ppmw)			
									Annual Emission (lb/yr)		Hourly Emission (lb/hr)	
									Acetone	Vinyl Acetate	Acetone	Vinyl Acetate
									67-64-1	108-05-4	67-64-1	108-05-4
Source	One-Way Road Length (ft)	Road Width (ft)	Road Area (ft^2)	Soiltac Application for Mix-In (gal/ft^2 rd)	Soiltac Application for Quarterly Sealant (gal/ft^2 rd)	Total Soiltac Usage (gal)	Days of Application	EF (mg/L)	110	230	110	230
Unpaved Stabilized Main Road (Quarterly Sealant)	1,900	40	76,000		0.01	3,040			2.79E+00	5.83E+00	2.53E-01	5.30E-01
Daily Cover Haul Road (Initial Mix-In)	1,300	20	26,000	0.07		1,820	2		1.67E+00	3.49E+00	--	--
Daily Cover Haul Road (Quarterly Sealant)	1,300	20	26,000		0.01	780			7.15E-01	1.50E+00	--	--
Stockpile B Haul Road (Quarterly Sealant)	800	20	16,000		0.01	640			5.87E-01	1.23E+00	--	--
Total									5.76E+00	1.20E+01	2.53E-01	5.30E-01

1) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year as placed on an aerial overlay of the landfill area.

2) Soiltac application rate data (undiluted quantity) as provided by the manufacturer.

3) Application rate for soiltac initial mix-in is assumed no more than 0.5 acres per day. Sealant is applied quarterly (3 additional times after the first quarter initial mix-in). Since these activities do not occur at the same time, the hourly emissions are based on quarterly sealant application on the unpaved main stabilized road, since product usage is higher for that road segment.

4) Initial mix-in for the unpaved stabilized main road and the SPB road is assumed to have occurred during a previous construction year. Therefore. Quarterly sealing will be applied 4 times for these roads.

5) Toxic emission factors as defined by a Solitac product test in 2004. According to the manufacturer, the product was contaminated by a residual product from another manufacturer when samples were collected from the tanker truck. The manufacturer performed more recent testing in 2010, where the product was taken directly from the manufacturing facility in glass bottles and VOCs, including acetone and vinyl acetate, were non-detect during lab testing.

Initial Operational Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

Toxic Emissions, CAS number, EF (ppmw)																
			Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc
			7429-90-5	7440-38-2	7440-39-3	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	14808-60-7	7440-66-6
Source	PM10 (lb/hr)	EF (ppmw)	21,000	15	120	1	1	46	18	94	30	565	0	30	1	100,000	100
Blasting	23.40		4.91E-01	3.51E-04	2.81E-03	2.34E-05	2.34E-05	1.08E-03	4.21E-04	2.20E-03	7.02E-04	1.32E-02	0.00E+00	7.02E-04	2.34E-05	2.34E+00	2.34E-03
Total Hourly (lb/hr)			4.91E-01	3.51E-04	2.81E-03	2.34E-05	2.34E-05	1.08E-03	4.21E-04	2.20E-03	7.02E-04	1.32E-02	0.00E+00	7.02E-04	2.34E-05	2.34E+00	2.34E-03

Initial Operational Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

Toxic Emissions, CAS number, EF (ppmw)																
			Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc
			7429-90-5	7440-38-2	7440-39-3	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	14808-60-7	7440-66-6
Source	PM10 (lb/yr)	EF (ppmw)	21,000	15	120	1	1	46	18	94	30	565	0	30	1	100,000	100
Blasting	0.0		2.46E-04	1.76E-07	1.40E-06	1.17E-08	1.17E-08	5.38E-07	2.11E-07	1.10E-06	3.51E-07	6.61E-06	0.00E+00	3.51E-07	1.17E-08	1.17E-03	1.17E-06
Total Annual (lb/yr)			2.46E-04	1.76E-07	1.40E-06	1.17E-08	1.17E-08	5.38E-07	2.11E-07	1.10E-06	3.51E-07	6.61E-06	0.00E+00	3.51E-07	1.17E-08	1.17E-03	1.17E-06

Notes:

1. Emission factors are based on SDAPCD Calculation Method D04 - Wet Drilling and Blasting Operations, Ammonium Nitrate with Fuel Oil, dated 8/25/99. This document contains APCD local test results, showing ppmw values for the compounds shown in these tables.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor[2]	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation/ripping	357.1	0.540	192.8	11	307
Dozer	Clay Liner Installation	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307
Compactor	Compacting Clay Liner	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating		VOC	CO	NOX	SO2	PM10	PM2.5[(2)]
(bhp)	Tier	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)
100-175	2	0.3	3.7	4.7	4.87E-03	0.22	0.22
175-300	2	0.3	2.59	4.7	4.87E-03	0.15	0.15
300-600	2	0.3	2.59	4.7	4.87E-03	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates and Tier 2 emission standards specified in USEPA's Emission Standards Reference Guide: Nonroad Compression-Ignition Engines -- Exhaust Emission Standards.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating		ROG	CO	NOX	SO2	PM10	PM2.5[(2)]
	Rating (bhp)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)	(g/bhp-hr)
Scraper (Tractor Engine)	225.0	0.3	2.59	4.7	4.87E-03	0.15	0.15
Scraper (Scraper Engine)	225.0	0.3	2.59	4.7	4.87E-03	0.15	0.15
Grader	106.0	0.3	3.7	4.7	4.87E-03	0.22	0.22
Dozer	192.8	0.3	2.59	4.7	4.87E-03	0.15	0.15
Dozer	192.8	0.3	2.59	4.7	4.87E-03	0.15	0.15
Dozer	192.8	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	192.8	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	192.8	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	192.8	0.3	2.59	4.7	4.87E-03	0.15	0.15

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Scraper/Grader DC Haul Rd	20.3	BCY/trip	100.0	trips/day	0.106	1
Scraper	Scraper/Grader Fill Haul Rd	20.3	BCY/trip	65.0	trips/day	0.055	1
Scraper	Scraper/Grader SPB Haul Rd	20.3	BCY/trip	616.9	trips/day	0.182	10
Grader	Haul Road Maintenance	--	--	1.553	miles/hr	0.207	1
Dozer	Excavation	600.0	BCY/hr	--	--	--	1
Dozer	Clay Liner Install	900.0	BCY/hr	--	--	--	1
Dozer	Landfill Waste Spreading	900.0	BCY/hr		--	--	1
Compactor	Compacting Waste (MSW)	2728.0	CCY/hr		--	--	1
Compactor	DC Compacting Cover	1705.0	CCY/hr		--	--	1
Compactor	Liner Compaction	672.7	CCY/hr	--	--	--	1

Emissions by Equipment (lb/hr)

Source	Use	Hourly Emissions (lb/hr)					
		ROG	CO	NOX	SO2	PM10	PM2.5[(2)]
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	1.786	15.417	27.976	0.029	0.893	0.893
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.104	0.899	1.632	0.002	0.052	0.052
Grader[1]	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	Clay Liner Installation	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	Waste Spreading	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Waste	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Cover	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Liner	0.128	1.101	1.998	0.002	0.064	0.064
Diesel Equipment Exhaust Total		**2.7**	**23.8**	**42.7**	**0.04**	**1.4**	**1.4**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Initial Operational Year

Emissions by Equipment (lb/day)

Source	Use	Daily Emissions (lb/day)					
		ROG	CO	NOX	SO2	PM10	PM2.5[(2)]
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	19.643	169.583	307.738	0.319	9.821	9.821
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	1.146	9.893	17.953	0.019	0.573	0.573
Grader[1]	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation	1.403	12.112	21.979	0.023	0.701	0.701
Dozer	Clay Liner Installation	1.403	12.112	21.979	0.023	0.701	0.701
Dozer	Waste Spreading	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Waste	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Cover	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Liner	1.403	12.112	21.979	0.023	0.701	0.701
	Diesel Equipment Exhaust Total	**29.276**	**253.011**	**458.7**	**0.475**	**14.65**	**14.65**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment (tons/year)

Source	Use	Annual Emissions (ton/yr)					
		ROG	CO	NOX	SO2	PM10	PM2.5[(2)]
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	3.015	26.031	47.238	0.049	1.508	1.508
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.176	1.519	2.756	0.003	0.088	0.088
Grader[1]	Haul Road Maintenance	0.011	0.133	0.169	0.000	0.008	0.008
Dozer	Excavation	0.215	1.859	3.374	0.003	0.108	0.108
Dozer	Clay Liner Installation	0.215	1.859	3.374	0.003	0.108	0.108
Dozer	Waste Spreading	0.215	1.859	3.374	0.003	0.108	0.108
Compactor	Compacting Waste	0.215	1.859	3.374	0.003	0.108	0.108
Compactor	Compacting Cover	0.215	1.859	3.374	0.003	0.108	0.108
Compactor	Compacting Liner	0.215	1.859	3.374	0.003	0.108	0.108
	Diesel Equipment Exhaust Total	**4.49**	**38.84**	**70.40**	**0.07**	**2.25**	**2.25**

Emissions by Area

Area	Emissions (tons/year)					
	ROG	CO	NOX	SO2	PM10	PM2.5[(2)]
SPB Haul	1.681	14.511	26.332	0.027	0.840	0.840
SPB Haul (Rock)	0.582	5.021	9.111	0.009	0.291	0.291
SPB Haul UNS	0.277	2.388	4.333	0.004	0.138	0.138
SPB Haul UNS (Rock)	0.220	1.898	3.444	0.004	0.110	0.110
LFEXCAV - Excavation	0.215	1.859	3.374	0.003	0.108	0.108
LFEXCAV - Soil Loading	0.070	0.600	1.089	0.001	0.035	0.035
SPBUN - Unload Soil at SPB	0.054	0.466	0.846	0.001	0.027	0.027
SPBUN - Unload Rock at SPB	0.000	0.000	0.000	0.000	0.000	0.000
ROCKLOAD - Load rock at LF	0.000	0.000	0.000	0.000	0.000	0.000
FILLUN - Unloading at fill area	0.000	0.000	0.000	0.000	0.000	0.000
AFOPS - Spread MSW	0.215	1.859	3.374	0.003	0.108	0.108
AFOPS - Compact MSW	0.215	1.859	3.374	0.003	0.108	0.108
AFOPS - Daily Cover Unload/Spread	0.008	0.072	0.131	0.000	0.004	0.004
AFOPS - Compacting Daily Cover	0.215	1.859	3.374	0.003	0.108	0.108
Clay Liner - Install	0.215	1.859	3.374	0.003	0.108	0.108
Clay Liner - Compaction	0.215	1.859	3.374	0.003	0.108	0.108
Diesel Equipment Exhaust Total	4.494	38.837	70.404	0.073	2.249	2.249

Table Notes:

1. Daily emissions for soil movement are based on a limit of 10,000 cy/day and a set requirement for 12% to daily cover. The remaining 88% is sent to SPB, with 0% to Fill, since the emission impacts are higher going to SPB (worst-case daily). Therefore, no daily scrapers (only daily grading) will occur on the Fill haul road.
2. Daily emissions for rock movement to SPB are shown as 0, since the worst case daily emission impacts will occur during blasting activity. No movement to SPB will occur on days that blasting occurs.

Division of Emissions

Area	Scraper			Scraper			Grader		
	VMT/day	% of Emissions		VMT/yr[1]	% of Emissions		VMT/yr[1]	% of Emissions	
Main UP	--	--	0	--	--	0	58	0	0
Main UPS	--	--	0	--	--	0	1	0	0
LF Deck	--	--	0	--	--	0	23	0	0
Daily Cover Haul	19	0	0	5,959	0	0	1	0	0
Daily Cover Haul UNS	6	0	0	1,834	0	0	151	0	0
Fill Haul	17	0	0	2,730	0	0	81	0	0
SPB Haul	237	1	0	98,454	1	0	1	0	0
SPB Haul (Rock)	82	0	0	25,112	0	0	1	0	0
SPB Haul UNS	39	0	0	16,409	0	0	0	0	0
SPB Haul UNS (Rock)	31	0	0	9,417	0	0	0	0	0
LFEXCAV - Soil Loading	10	0	0	3,009	0	0	--	--	0
SPBUN - Unload Soil at SPB	8	0	0	2,337	0	0	--	--	0
SPBUN - Unload Rock at SPB	0	0	0	1,997	0	0	--	--	0
ROCKLOAD - Load rock at LF	0	0	0	1,997	0	0	--	--	0
FILLUN - Unloading at fill area	0	0	0	309	0	0	--	--	0
AFOPS - Daily Cover Unload/Spread	1	0	0	363	0	0	--	--	0
Totals	**450**	**100.0%**		**169,928**	**100.0%**		**318.60**	**100.0%**	

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

GCLF Emissions from the Paved Main Road for Initial Operational Year

Paved Road equation from AP-42 (1/1995) Section 13.2.1 with additional speed factor:

$EF=k(sL/2)^{0.65}(W/3)^{1.5}(S/SF)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.016	0.007
Particle Size Multiplier (k)		0.016	0.0073
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Loading (sL)	g/m^2	0.4	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Speed Factor (SF)	mph	32.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	2,800
Trucks per day	trucks/day	675
Daily VMT	VMT/day	716

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.01	0.46
Daily Emissions	lb/day	11.12	5.07
Annual Emissions	ton/year	1.71	0.78

Notes:

1) Paved road emission factor is calculated with the paved road equation in AP-42 Section 13.2.1 (1/1995), with an additional speed factor, where trucks travel an average of 7.5 mph, without control efficiency. However, measures such as sweeping and other track out controls will be employed.

2) The $PM_{2.5}$ emission factor is based on AP-42 Section 13.2.2, (1/1995), where the particle size multiplier, k value, in Table 13.2.1.3 is 0.0073 lb/VMT (Note: This value is more conservative than the new AP-42 Section 13.2.1 (1/2006), with a k value of 0.0024 lb/VMT).

3) Silt loading (sL) value is based on 95% control and the AP-42 Table 13.2.1-3 mean silt loading value of 7.4 g/m^2 for municipal solid waste landfills. Control will be achieved through a combination of sweeping, track-out programs, and other measures as necessary.

4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for year 1 as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day is assumed to be 675 trucks in a typical year, derived from 5,000 tons/day max trash capacity assuming each truck can carry 8 tons, with 50 extra trucks added in as a buffer. However, this value is a conservative over-estimate, since the facility is limited to 3,250 tons/day max trash in Initial Operationa Year.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Initial Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.082	0.022
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	1,900
Trucks per day	trucks/day	675
Daily VMT for Truck Travel	VMT/day	486

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.62	0.95
Daily Emissions	lb/day	39.77	10.50
Annual Emissions	ton/year	6.11	1.61

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 1 as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day is assumed to be 675 trash trucks in a typical year, derived from 5,000 tons/day max trash capacity assuming each truck can carry 8 tons, with 50 extra trucks added in as a buffer. However, this value is a conservative over-estimate, since the facility is limited to 3,250 tons/day max trash in Initial Operational Year.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	1,900
Grader Passes	pass/yr	4
Yearly VMT for Grading	VMT/yr	1.44

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.62	0.07
Daily Emissions	lb/day	0.62	0.07
Annual Emissions	ton/year	0.001	0.000

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year.

3) Emissions are based on grading the stabilized road once per quarter, when initial mix-in of Soiltac road stabilizer or Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unpaved Main Road for Initial Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.273	0.072
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	500
Trucks per day	trucks/day	675
Daily VMT	VMT/day	128

E=EF x VMT

E=Emissions (lbs/day)

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.17	0.84
Daily Emissions	lb/day	34.92	9.21
Annual Emissions	ton/year	5.36	1.41

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 1 as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day is assumed to be 675 trash trucks in a typical year, derived from 5,000 tons/day max trash capacity assuming each truck can carry 8 tons, with 50 extra trucks added in as a buffer. However, this value is a conservative over-estimate, since the facility is limited to 3,250 tons/day max trash in Initial Operational Year.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0

PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	500
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.018
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	ton/year	0.05	0.01

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 1.

3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Unpaved Landfill Deck Road for Initial Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.376	0.099
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	20.7	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	200
Trucks per day	trucks/day	675
Daily VMT	VMT/day	51

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.75	0.46
Daily Emissions	lb/day	19.20	5.07
Annual Emissions	ton/year	2.95	0.78

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

4) One way road distance is considered 200 feet of deck.

5) Number of vehicles per day is assumed to be 675 trash trucks in a typical year, derived from 5,000 tons/day max trash capacity assuming each truck can carry 8 tons, with 50 extra trucks added in as a buffer. However, this value is a conservative over-estimate, since the facility is limited to 3,250 tons/day max trash in Initial Operational Year.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	200
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.08

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.07	0.01
Daily Emissions	lb/day	0.13	0.01
Annual Emissions	ton/year	0.02	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance is considered 200 feet of deck.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Daily Cover Haul Road for Initial Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	1,300
Average load	CY/scraper	20.3
Scrapers per day	scraper/day	91
Other scrapers per day	scraper/day	9
Daily Soil	CY/day	1,852
Daily VMT	VMT/day	49
Scrapers per year	scraper/year	11,002
Other scrapers per year	scraper/year	1,100
Annual Soil	CY/year	223,333
Annual VMT	VMT/year	5,959

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.76	0.20
Daily Emissions	lb/day	8.36	2.21
Annual Emissions	ton/year	0.51	0.13

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency for chemical stabilization. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	1,300
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	0.98

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.42	0.047
Daily Emissions	lb/day	0.42	0.05
Annual Emissions	ton/year	0.001	0.000

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) Emissions are based on grading the stabilized road once per quarter, when sealer is applied.

3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year.

GCLF Emissions from the Unstabilized Daily Cover Haul Road for Initial Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.784	0.207
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	20.7	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	CY/scraper	20.3
Scrapers per day	scraper/day	91
Other scrapers per day	scraper/day	9
Daily Soil	CY/day	1,852
Daily VMT	VMT/day	15
Scrapers per year	scraper/year	11,002
Other scrapers per year	scraper/year	1,100
Annual Soil	CY/year	223,333
Annual VMT	VMT/year	1,834

E=EF x VMT

E=Emissions (lbs/day)

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.07	0.28
Daily Emissions	lb/day	11.77	3.11
Annual Emissions	ton/year	0.72	0.19

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0

PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	1,300
Grader Passes	pass/day	2
Yearly VMT	VMT/day	0.49

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.42	0.047
Daily Emissions	lb/day	0.85	0.09
Annual Emissions	ton/year	0.13	0.01

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) Emissions are based on grading the unstabilized road twice per day.

3) One way road distance was obtained by using approximately last 200 feet of each end of road.

GCLF Emissions from the Fill Area Haul Road for Initial Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.784	0.207
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	20.7	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	700
Average load	CY/scraper	20.3
Scrapers per day		59
Other scrapers per day		6
Daily Soil	CY/day	1,200
Daily VMT	VMT/day	17
Scrapers per year		9,360
Other scrapers per year		936
Annual Soil	CY/year	190,000
Annual VMT	VMT/year	2,730

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.21	0.32
Daily Emissions	lb/day	13.32	3.52
Annual Emissions	ton/year	1.07	0.28

Notes:
1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year.
3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.
4) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.
5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

6) Daily emissions for soil movement are based on a limit of 10,000 cy/day and a set requirement for 12% to daily cover. The remaining 88% is sent to SPB, with 0% to Fill, since the emission impacts are higher going to SPB (worst-case daily). Therefore, no hourly or daily emissions are shown on the Fill Haul Rd.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	700
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.27

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.23	0.03
Daily Emissions	lb/day	0.46	0.05
Annual Emissions	ton/year	0.07	0.01

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) Emissions are based on grading the unstabilized road twice per day
3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year.

GCLF Emissions from the Stockpile B Haul Road for Initial Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance (soil)	feet	1,800
One way distance (rock)	feet	800
Average load (soil)	CY/scraper	20.3
Average load (rock)	CY/scraper	16.3
Soil		
Scrapers per day		315
Other scrapers per day		32
Daily Soil	CY/day	6,400
Daily VMT	VMT/day	237
Scrapers per year		131,272
Other scrapers per year		13,127
Annual Soil + Rock	CY/year	2,664,815
Annual VMT	VMT/year	98,454
Rock		
Scrapers per day		245
Other scrapers per day		25
Daily Rock	CY/day	4,000
Daily VMT	VMT/day	82
Scrapers per year		75,337
Other scrapers per year		7,534
Annual Rock	CY/year	1,228,000
Annual VMT	VMT/year	25,112

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Rock Travel			
Hourly Emissions	lb/hour	1.27	0.34
Daily Emissions	lb/day	13.98	3.69
Annual Emissions	ton/year	2.14	0.57
Road model volumes		9	9
Soil Travel (Plus Rock Travel Continues)			
Hourly Emissions	lb/hour	3.67	0.97
Daily Emissions	lb/day	40.42	10.67
Annual Emissions	ton/year	8.39	2.22

Notes:
1) Number of scrapers derived from soil/rock needed and scraper capacity. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. Daily emissions for rock movement on SPB haul raods are shown as 0, since the worst case daily emission impacts will occur during blasting activity. No movement of rock to SPB will occur on days that blasting occurs.
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 1. Rock movement will begin at the blasting area and soil movement will occur from the landfill excavation area, therefore, the rock movement road length is approx. 2,600 feet, while the soil movement is approx. 1,800 feet in length.
3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.
4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.
5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency for chemical stabilization. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.
6) No daily or hourly travel on the SPB Haul road is shown for rock travel, since rock will not be transported or the same day as blasting occurs. Blasting impacts are higher than rock transportation.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance (Rock)	feet	800
One way distance (Soil + Rock)	feet	1,800
Grader Passes	pass/yr	4
Yearly VMT (Rock)	VMT/yr	0.61
Yearly VMT (Soil + Rock)	VMT/yr	1.36

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

SPB Haul (Soil + Rock)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.59	0.065
Daily Emissions	lb/day	0.59	0.07
Annual Emissions	ton/year	0.00	0.00

SPB Haul (Rock)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.26	0.029
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/year	0.0005	0.0001

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) Emissions are based on grading the stabilized road once per quarter, when sealer is applied.
3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Initial Operational year.

GCLF Emissions from the Unstabilized Stockpile B Haul Road for Initial Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.784	0.207
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	20.7	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance (soil + rock)	feet	300
One way distance (rock)	feet	300
Average load (soil)	CY/scraper	20.3
Average load (rock)	CY/scraper	16.3
Soil		
Scrapers per day		315
Other scrapers per day		32
Daily Soil	CY/day	6,400
Daily VMT	VMT/day	39
Scrapers per year		131,272
Other scrapers per year		13,127
Annual Soil + Rock	CY/year	2,664,815
Annual VMT	VMT/year	16,409
Rock		
Scrapers per day		245
Other scrapers per day		25
Daily Rock	CY/day	4,000
Daily VMT	VMT/day	31
Scrapers per year		75,337
Other scrapers per year		7,534
Annual Rock	CY/year	1,228,000
Annual VMT	VMT/year	9,417

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Rock Travel			
Hourly Emissions	lb/hour	2.21	0.58
Daily Emissions	lb/day	24.32	6.42
Annual Emissions	ton/year	3.69	0.97
Road model volumes		3	3
Soil Travel (Plus Rock Travel Continues)			
Hourly Emissions	lb/hour	2.78	0.73
Daily Emissions	lb/day	30.59	8.07
Annual Emissions	ton/year	6.44	1.70
Road model volumes		3	3

Notes:
1) Number of scrapers derived from soil/rock needed and scraper capacity. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. Daily emissions for rock movement on SPB haul raods are shown as 0, since the worst case daily emission impacts will occur during blasting activity. No movement of rock to SPB will occur on days that blasting occurs.

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

6) No daily or hourly travel on the SPB Haul road is shown for rock travel, since rock will not be transported on the same day as blasting occurs. Blasting impacts are higher than rock transportation.

Grading

Grading equation from AP-42 (7/1998) Section 11.9

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance (Rock)	feet	300
One way distance (Rock+Soil)	feet	300
Grader Passes	pass/day	2
Yearly VMT (Rock)	VMT/yr	0.11
Yearly VMT (Rock+Soil)	VMT/yr	0.11

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

SPB Haul (Soil + Rock)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0003	0.0000
Daily Emissions	lb/day	0.0006	0.0001
Annual Emissions	ton/year	0.0001	0.000

SPB Haul (Rock)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0003	0.0003
Daily Emissions	lb/day	0.0006	0.0006
Annual Emissions	ton/year	0.000	0.000

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) Emissions are based on grading the unstabilized road twice per day.
3) One way road distance was obtained by using approximately last 200 feet of each end of road.

GCLF Emissions from Landfill Excavation for Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled	lbs/1000 BCY	20.32	3.048	0.15
Emission Factor, controlled	lbs/1000 BCY	14.69	2.203	
Hours of Operation	hours/day	11		
Operational Days per Year	days/year	307		
Daily Excavation volume (soil)	CY/day	10,000		
Annual Excavation volume (soil)	CY/year	1,850,148		

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	13.35	2.00
Daily Emissions	lb/day	146.89	22.03
Annual Emissions	ton/year	13.59	2.04

Excavation Type	Uncontrolled	Controlled	Percent of Total Area
Landfill Cut (lbs/1000 BCY)	5.46	3.95	32%
Landfill Side Slope (lbs/1000 BCY)	27.31	19.74	68%

Notes:

1) Emission factors based on SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. Emission factor was adjusted to account for 20.7% silt and 6.71% moisture when uncontrolled and 8.46% moisture when controlled.. A silt value of 20.7% is derived for material originating from the landfill area. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

2) Excavation volumes are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to excavation.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Soil Loading and Unloading in Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading Scraper at Landfill Area				
Emission Factor, uncontrolled	lbs/1000 BCY	39.44	5.92	0.15
Emission Factor, controlled	lbs/1000 BCY	5.20	0.78	
Unloading Scraper at Stockpile B, Fill Area, and Daily Cover Area				
Emission Factor, uncontrolled	lbs/1000 BCY	17.45	2.62	
Emission Factor, controlled	lbs/1000 BCY	2.02	0.30	
Compacting Daily Cover at Active Face of the Landfill				
Emission Factor, controlled	lbs/1000 CCY	3.70	0.55	
Hours of Operation	hours	11	11	
Operational Days per Year	days/year	307	307	
Max Daily Soil to SPB	CY/day	6,400	6,400	
Annual Soil to SPB	CY/year	1,436,815	1,436,815	
Max Daily Soil to Fill Area	CY/day	1,200	1,200	
Annual Soil to Fill Area	CY/year	190,000	190,000	
Max Daily Soil to Daily Cover Area	CY/day	1,852	1,852	
Annual Soil to Daily Cover Area	CY/year	223,333	223,333	

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading Scraper at Landfill Area			
Hourly Emissions	lb/hour	4.47	0.67
Daily Emissions	lb/day	49.13	7.37
Annual Emissions	ton/year	4.81	0.72
Unloading Scraper at Stockpile B			
Hourly Emissions	lb/hour	1.17	0.18
Daily Emissions	lb/day	12.92	1.94
Annual Emissions	ton/year	1.45	0.22
Unloading Scraper at Fill Area			
Hourly Emissions	lb/hour	0.22	0.03
Daily Emissions	lb/day	2.42	0.36
Annual Emissions	tons/year	0.19	0.03
Unloading Scraper at Active Face of Landfill			
Hourly Emissions	lb/hour	0.34	0.05
Daily Emissions	lb/day	3.74	0.56
Annual Emissions	tons/year	0.23	0.03
Compacting Daily Cover at Active Face of Landfill			
Hourly Emissions	lb/hour	0.62	0.09
Daily Emissions	lb/day	6.85	1.03
Annual Emissions	tons/year	0.41	0.06

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09, using 20.7% silt and 6.71% moisture when uncontrolled and 8.46% moisture when controlled.

2) Soil parameters and quantity are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to loading/unloading/compacting for $PM_{2.5}$ emissions.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Municipal Solid Waste Operations for Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
MSW Spreading				
Emission Factor, uncontrolled	lbs/1000 LCY	0.36	0.18	0.50
Emission Factor, controlled	lbs/1000 LCY	0.36	0.18	
Emission Factor, uncontrolled	lbs/1000 tons	1.37	0.69	
Emission Factor, controlled	lbs/1000 tons	1.37	0.69	
Average Dozing Distance	feet	100	100	
Maximum Capacity	LCY/hr	1946.1	1946.1	
Wet Density, lb/LCY	lb/LCY	525	525	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	1.00	1.00	
Material Compaction Factor	CCY/BCY	0.39	0.39	
Adjusted Capacity	LCY/hr	1459.5	1459.5	
Silt, %	%	12.7	12.7	
Moisture Content (Uncontrolled)		19.6	19.6	
Moisture Content (Controlled)		19.6	19.6	
MSW Compactor Travel				
Emission Factor, uncontrolled	lb/1,000 CCY	0.19	0.10	0.50
Emission Factor, controlled	lb/1,000 CCY	0.19	0.10	
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143	
Emission Factor, controlled	lb/1,000 tons	0.286	0.143	
MSW Compaction				
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143	
Emission Factor, controlled	lb/1,000 tons	0.286	0.143	
Compactor Wt.	lb	113,350	113,350	
Lift Thickness (Compacted)	in	12	12	
Normal Operation Speed	mph	8	8	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	7.5	7.5	
Compactor Width per Pass	ft	9.3	9.3	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	525	525	
Wet Density	lb/LCY	525	525	
Wet Density	lb/CCY	1350	1,350	
Material Volume Change	BCY/LCY	1	1	
Material Compaction Factor	CCY/BCY	0.39	0.39	
Max Capacity	CCY/hr	2728	2,728	
Adjusted Capacity	CCY/hr	2728	2,728	
Silt	%	12.7	12.7	
Moisture Content, Uncontrolled	%	19.6	19.6	
Moisture Content, Controlled	%	19.6	19.6	
Hours of Operation	hours	11	11	
Max Daily Cover Soil	CY/day	1852	1,852	
Annual Cover Soil	CY/year	223,333	223,333	

E=EF x MSWM x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 tons)

MSWM = MSW Mass (tons/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Spreading and Compacting MSW			
Hourly Emissions	lb/hour	0.88	0.44
Daily Emissions	lb/day	9.73	4.88
Annual Emissions	ton/year	1.49	0.75

Notes:

1) Emission factors based on Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) Load factors are from Caterpillar Performance Handbook, 33d edition, 2002, pg 26-4, liner--natural bed clay, rock--broken granite, soil--25% rock 75% soil

3) Compaction factors are from Army Field Manual FM 5-434, 1994, Table 1-1

4) Speed and number of passes from Army Field Manual FM 5-434, 1994, Table 11-3

5) MSW silt content and moisture content from EPA-450/3-89-019, May, 1989, Table 5-2, pg 5-9.

6) MSW uncompacted (in-truck) density (lb/LCY) based on recommended default density for residential rear loaders in "Determining Remaining Permitted Capacity of California Landfills," CIWMB, April, 1995, Appendix A-3, Table A3-1.

7) MSW compacted density (lb/CCY) based on proposed in-place density in the application and EIR, 1350 lb/cy^3.

8) MSW compaction ratio based on compacting waste waste from in-truck density to in-place density.

9) MSW compacted lift thickness estimated from thickness range necessary to achieve the compacted density, Caterpillar Performance Handbook, 33d edition, 2002, pg 25-10.

10) MSW number of passes based on using Caterpillar 836G and method in "Determining Remaining Permitted Capacity of California Landfills," CIWMB, April, 1995, Appendix B.

11) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

12) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Clay Liner Installation for Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Clay Liner Side Slope Installation				
Emission Factor, uncontrolled	lbs/1000 CCY	24.39	6.74	0.28
Emission Factor, controlled	**lbs/1000 CCY**	**2.44**	**0.67**	
Emission Factor, uncontrolled	lbs/1000 tons	17.42	4.81	
Emission Factor, controlled	lbs/1000 tons	1.74	0.48	
Average Dozing Distance	feet	100	100	
Maximum Capacity	LCY/hr	850	850	
Wet Density, lb/BCY	lb/BCY	3500	3500	
Wet Density, lb/LCY	lb/LCY	2800	2800	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Adjusted Capacity, LCY/hr	LCY/hr	637.5	637.5	
Adjusted Capacity, BCY/hr	BCY/hr	510	510	
Adjusted Capacity, CCY/hr	CCY/hr	459	459	
Silt, %	%	90	90	
Moisture Content (Uncontrolled)		18	18	
Control Factor (Clay Material is Wet)	%	90	90	
Clay Liner Level (Floor) Installation				
Emission Factor, uncontrolled	lbs/1000 CCY	14.81	4.09	0.28
Emission Factor, controlled	**lbs/1000 CCY**	**1.48**	**0.41**	
Emission Factor, uncontrolled	lbs/1000 tons	10.58	2.92	
Emission Factor, controlled	lbs/1000 tons	1.06	0.29	
Average Dozing Distance	feet	50	50	
Maximum Capacity	LCY/hr	1400	1400	
Wet Density, lb/BCY	lb/BCY	3500	3500	
Wet Density, lb/LCY	lb/LCY	2800	2800	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Adjusted Capacity, LCY/hr	LCY/hr	1050.0	1050.0	
Adjusted Capacity, BCY/hr	BCY/hr	840	840	
Adjusted Capacity, CCY/hr	CCY/hr	756	756	
Silt, %	%	90	90	
Moisture Content (Uncontrolled)		18	18	
Control Factor (Clay Material is Wet)	%	90	90	

Liner Side Slope Compactor Travel				
Emission Factor, uncontrolled	lb/VMT	10.79	2.85	0.26
Emission Factor, controlled	lb/VMT	1.08	0.28	
Emission Factor, uncontrolled	lb/1,000 CCY	64.16	16.93	
Emission Factor, controlled	**lb/1,000 CCY**	**6.42**	**1.69**	
Emission Factor, uncontrolled	lb/1,000 tons	33.00	8.71	
Emission Factor, controlled	lb/1,000 tons	3.30	0.87	
Clay Liner Side Slope Compaction				
Emission Factor, uncontrolled	lb/1,000 CCY	16.64	4.60	0.28
Emission Factor, controlled	**lb/1,000 CCY**	**1.66**	**0.46**	
Emission Factor, uncontrolled	lb/1,000 tons	8.559	2.364	
Emission Factor, controlled	lb/1,000 tons	0.856	0.236	
Compactor Wt.	lb	72,200	72,200	
Lift Thickness (Compacted)	in	6	6	
Normal Operation Speed	mph	4	4	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	4	4	
Compactor Width per Pass	ft	8.6	8.6	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	3500	3500	
Wet Density	lb/LCY	2800	2800	
Wet Density	lb/CCY	3889	3889	
Material Volume Change	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Max Capacity	CCY/hr	673	673	
Adjusted Capacity	CCY/hr	673	673	
Silt	%	90	90	
Moisture Content, Uncontrolled	%	18	18	
Control Factor (Clay Material is Wet)	%	90	90	
Hours of Operation	hours	11	11	

Liner Level (Floor) Compactor Travel				
Emission Factor, uncontrolled	lb/VMT	10.79	2.85	0.26
Emission Factor, controlled	lb/VMT	1.08	0.28	
Emission Factor, uncontrolled	lb/1,000 CCY	64.16	16.93	
Emission Factor, controlled	**lb/1,000 CCY**	**6.42**	**1.69**	
Emission Factor, uncontrolled	lb/1,000 tons	33.00	8.71	
Emission Factor, controlled	lb/1,000 tons	3.30	0.87	
Clay Liner Level (Floor) Compaction				
Emission Factor, uncontrolled	lb/1,000 CCY	16.64	4.60	0.28
Emission Factor, controlled	**lb/1,000 CCY**	**1.66**	**0.46**	
Emission Factor, uncontrolled	lb/1,000 tons	8.559	2.364	
Emission Factor, controlled	lb/1,000 tons	0.856	0.236	
Compactor Wt.	lb	72,200	72,200	
Lift Thickness (Compacted)	in	6	6	
Normal Operation Speed	mph	4	4	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	4	4	
Compactor Width per Pass	ft	8.6	8.6	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	3,500	3,500	
Wet Density	lb/LCY	2,800	2,800	
Wet Density	lb/CCY	3,889	3,889	
Material Volume Change	BCY/LCY	0.8	0.8	
Material Compaction Factor	CCY/BCY	0.9	0.9	
Max Capacity	CCY/hr	673	673	
Adjusted Capacity	CCY/hr	673	673	
Silt	%	90	90	
Moisture Content, Uncontrolled	%	18	18	
Control Factor (Clay Material is Wet)	%	90	90	
Hours of Operation	hours	11	11	
Liner Material Side Slope	CCY/yr	185,355	185,355	
Liner Material Level Floor	CCY/yr	43,716	43,716	

E=EF x CCY Clay x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 CCY)

Liner Clay Material = CCY Clay (CCY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Clay Liner Placement			
Hourly Emissions	lb/hour	0.70	0.19
Daily Emissions	lb/day	7.71	2.07
Annual Emissions	ton/year	1.18	0.32

Notes:

1) Emission factors based on SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.
2) Load factors are from Caterpillar Performance Handbook, 33d edition, 2002, pg 26-4, liner--natural bed clay, rock--broken granite, soil--25% rock 75% soil
3) Compaction factors are from Army Field Manual FM 5-434, 1994, Table 1-1
4) Speed and number of passes from Army Field Manual FM 5-434, 1994, Table 11-3
5) Silt content for clay liners taken as maximum value for California sedimentary soil liners in EPA/530-SW-86-007-F, Table 5-3--values ranged from 75 to 95%.
6) Silt content of clay liner> 50% silt suitable for liners, Design of Lnadfills and Integrated Solid Waste Management, A. Bagchi, John Wiley & Sons, 2004, pg. 424.

GCLF Emissions from Landfill Area Wind Erosion for Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Area	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Area	lb/acre-year	202.54	30.38	
Emission Factor, Undisturbed	lb/acre-hour	0.5649	0.0847	
Emission Factor, Undisturbed	lb/acre-year	141.78	21.27	
Frequency of Wind over threshold	hours/year	0.029	0.029	
Hours of Operation	hours/day	24	24	
Operational Days per Year	days/year	365	365	
Exposed area from Daily Cover	acres	2	2	
Exposed area from Construction	acres	67	67	
Exposed area in Stockpile B	acres	64	64	
Undisturbed area from prior year Construction	acres	17	17	

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Disturbed Area - Active Face of Landfill			
Hourly Emissions	lb/hour	1.61	0.24
Daily Emissions	lb/day	38.74	5.81
Annual Emissions	tons/year	0.20	0.03
Disturbed Area - Construction Area of Landfill			
Hourly Emissions	lb/hour	54.07	8.11
Daily Emissions	lb/day	1297.75	194.66
Annual Emissions	tons/year	6.79	1.02
Disturbed Area - Stockpile B			
Hourly Emissions	lb/hour	51.65	7.75
Daily Emissions	lb/day	1239.64	185.95
Annual Emissions	tons/year	6.48	0.97
Undisturbed Area - Construction Area of Landfill			
Hourly Emissions	lb/hour	9.60	1.44
Daily Emissions	lb/day	230.50	34.57
Annual Emissions	tons/year	1.21	0.18

E=EF x A

E= Emissions (lbs/day)

EF = Emission Factor (lb/acre-day)

A = Exposed Area (acres)

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09 for wind erosion.

2) 64 acres disturbed area in Stockpile B assumes the entire stockpile area is disturbed. 67 acres disturbed area in the landfill assumes most of the Phase II landfill area would be disturbed during Year 1 landfill construction. 17 acres undisturbed, unvegetated area in the landfill is from prior year construction activity. 2 acres disturbed area in the daily cover area is the acreage of active landfill cells for refuse.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, k($PM_{2.5}$) = 0.2 and k(PM_{10}) = 0.5. In the 11/2006 version, k($PM_{2.5}$) = 0.075 and k(PM_{10}) = 0.5.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

GCLF Emissions from Drilling for Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor	lbs/ton	0.00008	1.481E-05	0.185
Operational Hours	hour/day	6	6	
Total Rock	CY/yr	24,200	24,200	
Total Rock	CY/day	79	79	
Total Rock	CY/hr	7	7	
Rock Density	ton/CY	1.5	1.5	

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0009	0.0002
Daily Emissions	lb/day	0.0095	0.0018
Annual Emissions	tons/year	0.0015	0.0003

E=EF x R x rd

E= Emissions (lbs/day)
EF = Emission Factor (lb/ton)
R = Daily Rock (CY/day)
rd = Rock Density (ton/CY)

Notes:

1) Emission Factor referenced from AP-42 (1/1995) Table 11.19.2-2. wet drilling.

2) There is no $PM_{2.5}$ emission factor for wet drilling in AP-42 Section 11.19.2. Therefore, an equivalent $PM_{2.5}$ to PM_{10} ratio will be derived from a similar mechanical process. Table 11.19.2-2 in AP-42 (8/2004) lists a PM_{10} emission factor of 0.00054 lb/ton and a $PM_{2.5}$ emission factor of 0.00010 lb/ton for teritary rock crushing, resulting in a ratio of 0.185. This ratio will be applied for drilling.

3) No daily emissions from drilling are inlcuded in this AQIA, since the worst case day will include a blast and no drilling will occur during a day that blasting occurs.

GCLF Emissions from Blasting for Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF) 1/16 acre	lb/blast	1.03	0.06
Emission Factor (EF) 1/8 acre	lb/blast	2.93	0.17
Emission Factor (EF) 1/4 acre	lb/blast	8.27	0.48
Emission Factor (EF) 1/2 acre	lb/blast	23.40	1.35
Scaling Factor (k)	PM_x / TSP	0.52	0.03
Blasts per Day	blast/day	1	1
Blasts per Hour	blast/hr	1	1
Blasts per Year	blasts/year	1	1
Total Rock Blasted in Year -2	CY/yr	24,200	24,200

Parameter	Units	NOx Value	CO Value	SOx Value
Emission Factor (EF)	lb/ton ANFO	17	67	2

$PM\ EF=0.000014 \times A^{1.5} \times k$

EF=Emission Factor (lb/blast)
A = Horizontal Blast Area (ft2)
k=Scaling factor (PMx / TSP)

Blast Data	Blast Depth (ft)	Horiz. Blast Area (acres/blast)	Horiz. Blast Area (ft^2/blast)		Blast Volume (CF/Blast)	Blast Volume (CY/Blast)	Number of Blasts per Year	Blast Rock Volume (CY/yr)	ANFO per Blast (tons)	Total ANFO per Year (tons)
Blast Type (1/16 acre)	30	0.0625	2,723		81,675	3,025	0	0	1	0
Blast Type (1/8 acre)	30	0.125	5,445		163,350	6,050	0	0	2	0
Blast Type (1/4 acre)	30	0.25	10,890		326,700	12,100	0	0	4	0
Blast Type (1/2 acre)	30	0.5	21,780		653,400	24,200	1	24,200	8	8
						Total:	**1**	**24,200**		8

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly/Daily Emissions (1/2 acre)	lb/hour, lb/day	23.40	0.48
Annual Emissions	tons/year	0.01	0.00

Calculated Emissions	Units	NOx Value	CO Value	SOx Value
Hourly/Daily Emissions (1/2 acre)	lb/hour, lb/day	136	536	16
Annual Emissions	tons/year	0.07	0.27	0.01

E=EF x B

E= Emissions (lbs/day)
EF = Emission Factor (lb/blast)
B = Blasts per day

Notes:
1) Emission Factor equation from AP-42 (10/1998), Section 11.9.2.
2) Emission Factors for NOx, CO, and SOx are from AP-42 Section 13.3 - Explosives Detonation, dated 1/95, Table 13.3-1.
3) Maximum blast area assumed to be 1/2th of an acre, used for daily and hourly emissions. Annual blast rate assumes the total number of blasts per year and the weighted average size of the blast.
4) Scaling factors for PM_{10} and $PM_{2.5}$ from AP-42 (10/1998), Table 11.9.-1.
5) Hourly and daily emissions are the same as no more than one blast will occur on any given day.
6) Amount of rock to be blasted referenced from BAS drawing "Gregory Canyon Landfill Excavation Over 50 feet Deep".
7) Blasting volume is based on the blast depth and the horizontal blast areas, as defined in the GCLF AEI, Appendix F, dated October 2008.

GCLF Emissions from Rock Loading and Unloading in Initial Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading at Landfill Area				
Emission Factor, uncontrolled	lbs/1000 BCY	7.44	1.12	0.15
Emission Factor, controlled	lbs/1000 BCY	0.88	0.13	
Unloading at Stockpile B				
Emission Factor, uncontrolled	lbs/1000 BCY	3.79	0.57	
Emission Factor, controlled	lbs/1000 BCY	0.69	0.10	
Hours of Operation	hours	11	11	
Operational Days per Year	days/year	307	307	
Max Daily Rock to Stockpile B	CY/day	4,000	4000	
Annual Rock to Stockpile B	CY/year	1,228,000	1,228,000	

E=EF x EV x 1000

E = Emissions (lbs/day (year))
EF = Emission Factor (lbs/1000 BCY)
EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading at Landfill Area			
Hourly Emissions	lb/hour	0.32	0.05
Daily Emissions	lb/day	3.51	0.53
Annual Emissions	tons/year	0.54	0.08
Unloading at Stockpile B			
Hourly Emissions	lb/hour	0.25	0.04
Daily Emissions	lb/day	2.77	0.42
Annual Emissions	tons/year	0.43	0.06

Notes:
1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09, using 4% silt for hard rock and a 90% control factor.
2) Rock volumes are based on information from Volume IV - AEI Appendix F, October 2008.
3) Daily emissions for rock movement to SPB are shown as 0, since the worst case daily emission impacts will occur during blasting activity. No movement of rock to SPB will occur on days that blasting occurs.
4) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to loading/unloading activities for $PM_{2.5}$ emissions.

5) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Rock Crushing for Initial Operational Year

ROCK CRUSHING PLANT EMISSIONS CALCULATIONS										
SOURCE DESCRIPTION	SOURCE TYPE	PROCESS RATE (tons/hr)	PM_{10} EMISSION FACTOR** (lbs/ton)	$PM_{2.5}$ EMISSION FACTOR** (lbs/ton)	EMISSION FACTOR TYPE	CONTROL EFFICIENCY	CALCULATED PM10 EMISSIONS (lbs/hr)	CALCULATED PM2.5 EMISSIONS (lbs/hr)	CALCULATED PM10 EMISSIONS (lbs/yr)	CALCULATED PM2.5 EMISSIONS (lbs/yr)
Front Loader to vibrating feeder	transfer point 1	400	1.40E-03	3.79E-04	dry transfer point		0.5600	0.1517	1065.2019	288.4922
Grizzly feeder to conveyor C-1	transfer point 2	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	36.5212	9.8912
Conveyor C-1 to stacker RS1	transfer point 3	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	36.5212	9.8912
Stacker RS1 to stockpile SP1	transfer point a	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	36.5212	9.8912
Grizzly feeder to jaw crusher	transfer point b	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	36.5212	9.8912
Jaw crusher	primary crushing	300	7.00E-04	1.00E-04	primary crushing with baghouse	97.5%	0.0053	0.0008	13.3150	1.9021
Jaw crusher to conveyor C-2	transfer point c	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	36.5212	9.8912
Conveyor C-2 to triple deck scree	transfer point d	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	36.5212	9.8912
Triple deck screen	process screen	300	8.40E-04	5.00E-05	process screen with baghouse	97.5%	0.0063	0.0004	15.9780	0.9511
Triple deck screen to conveyor C-	transfer point 4	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	36.5212	9.8912
Triple deck to conveyor C-3	transfer point e	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Conveyor C-5 to radial stacker RS	transfer point 5	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	36.5212	9.8912
Radial stacker RS2 to stockpile S	transfer point f	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	36.5212	9.8912
Conveyor C-3 to cone crusher	transfer point g	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Cone crusher CR2	process crushing	195	5.90E-04	1.00E-04	process crushing with baghouse	97.5%	0.0029	0.0005	11.2227	1.9021
Cone crusher to conveyor C-4	transfer point h	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Conveyor C-4 to triple deck scree	transfer point i	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	36.5212	9.8912
Triple deck screen to conveyor C-	transfer point 6	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	36.5212	9.8912
Conveyor C-6 to stacker RS-3	transfer point 7	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	36.5212	9.8912
Stacker RS3 to stockpile	transfer point j	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	36.5212	9.8912
						Total:	**0.71**	**0.19**	**1690.06**	**451.51**

* Emission Factors for PM10 are from Mineral Industry Emission Calculations Policy Memo, dated April 9, 1996 (SDAPCD Emission Calculation Procedures Guidance Documents)

** Emission Factors for PM2.5 are not provided in the Mineral Industry Emission Calculations Policy Memo, dated April 9, 1996. Therefore, AP-42 Section 11.19.2 will be used for PM2.5 emission factors, dated Aug 2004.

where the following emission factors apply for crushers:

	PM10	PM2.5
Primary crushing (+4 in materials)	7.00E-04 lbs/ton	1.00E-04 lbs/ton
Process crushing (-4 in materials) dry	2.40E-03 lbs/ton	lbs/ton
Process crushing (-4 in materials) wet	5.90E-04 lbs/ton	1.00E-04 lbs/ton
Fine crushing (<0.5 in materials) dry	1.50E-02 lbs/ton	lbs/ton
Fine crushing (<0.5 in materials) wet	2.00E-03 lbs/ton	7.00E-05 lbs/ton

Volume to be crushed	507,239 CY/year
Density of Rock	1.5 ton/CY
Mass to be crushed	760,859 ton/year

with the following control efficiencies to be used with dry emission factors:

Water spray	50% control efficiency	50% control efficiency
Water spray with surfactant	75% control efficiency	75% control efficiency
Venting to fabric filter	95% control efficiency	95% control efficiency
Venting to insertable fabric filter	97.5% control efficicency	97.5% control efficicency

and the following emission factors apply for screening:

Dry process screen	1.50E-02 lbs/ton	lbs/ton
Wet process screen	8.40E-04 lbs/ton	5.00E-05 lbs/ton
Dry fine screen	7.10E-02 lbs/ton	lbs/ton
Wet fine screen	2.10E-03 lbs/ton	lbs/ton

with the following control efficiencies to be used with dry emission factors:

Covered screen	50% control efficiency	50% control efficiency
Covered with central fabric filter	95% control efficiency	95% control efficiency
Covered with insertable fabric filter	97.5% control efficiency	97.5% control efficiency
Covered screen with water added	75% control efficiency	75% control efficiency
Covered screen with surfactant adde	95% control efficiency	95% control efficiency

and the following emission factors apply for transfer points:

wet transfer point	4.80E-05 lbs/ton	1.30E-05 lbs/ton
dry transfer point	1.40E-03 lbs/ton	3.79E-04 lbs/ton

with the following control efficiencies to be used with dry emission factors:

enclosed transfer point	50% control efficiency	50% control efficiency
insertable fabric filter	97.5% control efficiency	97.5% control efficiency
central fabric filter	95% control efficiency	95% control efficiency
fogged, enclosed transfer point	75% control efficiency	75% control efficiency

Compliance with Rule 52

Rule 52 standard: 0.1 grain per dry standard cubic foot of exhaust gas

Equipment exhaust flow rate: 1,000 cfm (applicant's data)

Grain loading = (PM emission through filter oulet/hour)) x (1/exhaust flow rate in cfm)(1 hour/ 60 min) x (7000 grains/lb PM)

= 0.00061 grain/dscft

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.71	0.19
Daily Emissions	lb/day	7.84	2.10
Annual Emissions	tons/year	0.85	0.23

Hourly Emissions for Interim Operational Yea
Pounds per Hour (lb/hr)

	Paved Main Road	Unpaved Stabilized Main Road(1)	Unpaved Main Road(1)	Unpaved Landfill Deck(1)	Borrow Area B Haul Road(1)	Excavation at SPB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (SPB Disturbed)	Wind Erosion (SPB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Flares	Landfill Gas Fugitive	Total (lbs/hr)
Fugitive PM_{10}	1.01	22.06	3.33	1.82	2.84	1.00	1.39	0.34	0.62	0.88	7.26	5.08	1.61	5.65	0.57		55.48
Exhaust PM_{10}		0.00	0.02	0.01	0.16	0.06	0.02	0.01	0.06	0.13							0.48
Total PM_{10}	1.01	22.06	3.36	1.82	3.00	1.06	1.41	0.35	0.69	1.01	7.26	5.08	1.61	5.65	0.57		55.96
Fugitive $PM_{2.5}$	0.46	5.33	0.85	0.47	0.64	0.15	0.21	0.05	0.09	0.44	1.09	0.76	0.24	0.85	0.57		12.22
Exhaust $PM_{2.5}$		0.00	0.02	0.01	0.16	0.06	0.02	0.01	0.06	0.13							0.48
Total $PM_{2.5}$	0.46	5.33	0.88	0.48	0.80	0.21	0.23	0.06	0.16	0.57	1.09	0.76	0.24	0.85	0.57		12.69
VOC		0.00	0.03	0.01	0.30	0.13	0.05	0.02	0.13	0.26					0.09	0.06	1.07
CO		0.05	0.37	0.15	2.68	1.10	0.39	0.20	1.10	2.20					1.72	0.80	10.76
NOx		0.06	0.47	0.19	4.69	2.00	0.71	0.36	2.00	4.00					0.84		15.31
SOx		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.31		0.32
TACs																	
Arsenic	2.02E-05	4.41E-04	6.67E-05	3.63E-05	5.68E-05	1.99E-05	2.78E-05	6.80E-06	1.25E-05	1.77E-05	1.45E-04	1.02E-04	3.23E-05	1.13E-04			1.098E-03
Beryllium	1.01E-06	2.21E-05	3.33E-06	1.82E-06	2.84E-06	9.97E-07	1.39E-06	3.40E-07	6.23E-07	8.85E-07	7.26E-06	5.08E-06	1.61E-06	5.65E-06			5.491E-05
Cadmium	1.01E-06	2.21E-05	3.33E-06	1.82E-06	2.84E-06	9.97E-07	1.39E-06	3.40E-07	6.23E-07	8.85E-07	7.26E-06	5.08E-06	1.61E-06	5.65E-06			5.491E-05
Chromium (total)	5.05E-05	1.10E-03	1.67E-04	9.08E-05	1.42E-04	4.99E-05	6.96E-05	1.70E-05	3.11E-05	4.42E-05	3.63E-04	2.54E-04	8.07E-05	2.82E-04			2.745E-03
Copper	1.01E-04	2.21E-03	3.33E-04	1.82E-04	2.84E-04	9.97E-05	1.39E-04	3.40E-05	6.23E-05	8.85E-05	7.26E-04	5.08E-04	1.61E-04	5.65E-04			5.491E-03
Lead	5.05E-05	1.10E-03	1.67E-04	9.08E-05	1.42E-04	4.99E-05	6.96E-05	1.70E-05	3.11E-05	4.42E-05	3.63E-04	2.54E-04	8.07E-05	2.82E-04			2.745E-03
Manganese	5.05E-04	1.10E-02	1.67E-03	9.08E-04	1.42E-03	4.99E-04	6.96E-04	1.70E-04	3.11E-04	4.42E-04	3.63E-03	2.54E-03	8.07E-04	2.82E-03			2.745E-02
Mercury	5.05E-06	1.10E-04	1.67E-05	9.08E-06	1.42E-05	4.99E-06	6.96E-06	1.70E-06	3.11E-06	4.42E-06	3.63E-05	2.54E-05	8.07E-06	2.82E-05	4.40E-07	4.89E-06	2.799E-04
Nickel	2.02E-05	4.41E-04	6.67E-05	3.63E-05	5.68E-05	1.99E-05	2.78E-05	6.80E-06	1.25E-05	1.77E-05	1.45E-04	1.02E-04	3.23E-05	1.13E-04			1.098E-03
Selenium	5.05E-06	1.10E-04	1.67E-05	9.08E-06	1.42E-05	4.99E-06	6.96E-06	1.70E-06	3.11E-06	4.42E-06	3.63E-05	2.54E-05	8.07E-06	2.82E-05			2.745E-04
Silica (crystalline)	1.01E-01	2.21E+00	3.33E-01	1.82E-01	2.84E-01	9.97E-02	1.39E-01	3.40E-02	6.23E-02	8.85E-02	7.26E-01	5.08E-01	1.61E-01	5.65E-01			5.491E+00
Zinc	2.02E-04	4.41E-03	6.67E-04	3.63E-04	5.68E-04	1.99E-04	2.78E-04	6.80E-05	1.25E-04	1.77E-04	1.45E-03	1.02E-03	3.23E-04	1.13E-03			1.098E-02
Acetone		3.30E-01			0.00E+00										1.75E-03	1.94E-02	3.514E-01
Acrylonitrile															1.25E-04	1.39E-03	1.519E-03
Benzene															6.41E-04	7.12E-03	7.765E-03
Carbon disulfide															1.90E-04	2.11E-03	2.298E-03
Carbonyl sulfide															1.26E-04	1.41E-03	1.532E-03
Carbon Tetrachloride															2.64E-06	2.94E-05	3.203E-05
Chlorobenzene															1.21E-04	1.34E-03	1.465E-03
Chlorodifluoromethane															4.83E-04	5.37E-03	5.851E-03
Chloroethane (ethyl chloride)															3.47E-04	3.85E-03	4.198E-03
Chloroform															1.54E-05	1.71E-04	1.864E-04
1,4-Dichlorobenzene															1.33E-04	1.47E-03	1.607E-03
Diesel Exhaust PM		2.818E-03	2.185E-02	8.738E-03	1.555E-01	6.377E-02	2.270E-02	1.135E-02	6.377E-02	1.275E-01							4.780E-01
Ethyl benzene															2.10E-03	2.34E-02	2.547E-02
Ethylene dichloride (1,2-Dichloroethane)															1.74E-04	1.94E-03	2.112E-03
Ethylidene dichloride (1,1-Dichloroethane)															1.00E-03	1.11E-02	1.211E-02
Fluorotrichloromethane (Chlorofluorocarbons)															4.83E-04	5.37E-03	5.851E-03
Formaldehyde															2.23E-02		2.235E-02
Hexane															2.43E-03	2.70E-02	2.947E-02
Hydrogen chloride															1.23E+00		1.230E+00
Hydrogen sulfide															5.20E-03	5.78E-02	6.297E-02
Isopropyl alcohol (2-propanol)															1.29E-02	1.44E-01	1.567E-01
Methyl chloroform															2.75E-04	3.06E-03	3.333E-03
Methylene chloride															5.22E-03	5.80E-02	6.322E-02
Methyl ethyl ketone															2.20E-03	2.44E-02	2.661E-02
Perchloro-ethylene															2.66E-03	2.95E-02	3.220E-02
Propylene dichloride (1,2-dichloropropane)															8.74E-05	9.71E-04	1.059E-03
1,1,2,2-tetrachloroethane															8.01E-04	8.90E-03	9.698E-03
Toluene															1.56E-02	1.73E-01	1.885E-01
Trichloroethylene															1.59E-03	1.77E-02	1.925E-02
Vinyl acetate		6.90E-01			0.00E+00												6.904E-01
Vinyl chloride															1.97E-03	2.19E-02	2.388E-02
Vinylidene chloride (1,1-dichloroethene)															8.33E-05	9.26E-04	1.009E-03
Xylenes															5.52E-03	6.13E-02	6.686E-02
PAHs w/o Napthalene															2.05E-04		2.053E-04
Napthalene															2.91E-05		2.913E-05
Dioxins & Furans															1.97E-21		1.970E-21
Total TAC	1.02E-01	3.25E+00	3.58E-01	1.92E-01	4.42E-01	1.64E-01	1.63E-01	4.57E-02	1.27E-01	2.17E-01	7.33E-01	5.13E-01	1.63E-01	5.70E-01	1.32E+00	7.14E-01	9.07E+00

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Annual Emissions for Interim Operational Year
(lb/day)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Landfill Deck[1]	Borrow Area B Haul Road[1]	Excavation at SPB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (SPB Disturbed)	Wind Erosion (SPB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Flares	Landfill Gas Fugitive	Total (lbs/day)
Fugitive PM_{10}	11.12	210.39	35.22	19.39	24.21	10.97	15.31	3.74	6.85	9.73	174.32	122.03	38.74	135.59	13.78		831.38
Exhaust PM_{10}		0.00	0.02	0.01	1.53	0.70	0.25	0.12	0.70	1.40							4.74
Total PM_{10}	11.12	210.39	35.25	19.40	25.74	11.67	15.56	3.86	7.55	11.14	174.32	122.03	38.74	135.59	13.78		836.13
Fugitive $PM_{2.5}$	5.07	55.03	9.26	5.10	6.26	1.65	2.30	0.56	1.03	4.88	26.15	18.30	5.81	20.34	13.78		175.51
Exhaust $PM_{2.5}$		0.00	0.02	0.01	1.53	0.70	0.25	0.12	0.70	1.40							4.74
Total $PM_{2.5}$	5.07	55.03	9.28	5.11	7.79	2.35	2.55	0.69	1.73	6.28	26.15	18.30	5.81	20.34	13.78		180.25
VOC		0.00	0.03	0.01	3.05	1.40	0.50	0.25	1.40	2.81					7.33	19.31	36.09
CO		0.05	0.37	0.15	26.41	12.11	4.31	2.16	12.11	24.22					2.07	1.49	85.44
NOx		0.06	0.47	0.19	47.76	21.98	7.82	3.91	21.98	43.96					41.33		189.46
SOx		0.00	0.00	0.00	0.05	0.02	0.01	0.00	0.02	0.05					20.23		20.38
TACs																	
Diesel Exhaust PM		2.818E-03	2.185E-02	8.738E-03	1.530E+00	7.014E-01	2.497E-01	1.248E-01	7.014E-01	1.403E+00							4.744E+00
Total TAC	0.00E+00	2.82E-03	2.18E-02	8.74E-03	1.53E+00	7.01E-01	2.50E-01	1.25E-01	7.01E-01	1.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.74E+00

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Annual Emissions for Interim Operational Year
tons per year (tpy)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Landfill Deck[1]	Borrow Area B Haul Road[1]	Excavation at SPB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (SPB Disturbed)	Wind Erosion (SPB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Flares	Landfill Gas Fugitive	Total (ton/yr)
Fugitive PM_{10}	1.09	20.36	3.48	1.90	3.81	0.66	0.92	0.23	0.41	0.96	0.91	0.64	0.20	0.71	2.51		38.80
Construction					3.81												3.81
Operation	1.09	20.36	3.48	1.90		0.66	0.92	0.23	0.41	0.96	0.91	0.64	0.20	0.71	2.51		34.99
Exhaust PM_{10}		0.00	0.00	0.00	0.15	0.07	0.02	0.01	0.07	0.14							0.47
Construction					0.15												0.15
Operation		0.00	0.00	0.00		0.07	0.02	0.01	0.07	0.14							0.32
Total PM_{10}	1.09	20.36	3.48	1.91	3.96	0.73	0.95	0.24	0.48	1.10	0.91	0.64	0.20	0.71	2.51		39.27
Construction					3.96												3.96
Operation	1.09	20.36	3.48	1.91		0.73	0.95	0.24	0.48	1.10	0.91	0.64	0.20	0.71	2.51		35.31
Fugitive $PM_{2.5}$	0.50	5.37	0.91	0.50	0.64	0.10	0.14	0.03	0.06	0.48	0.14	0.10	0.03	0.11	2.51		11.62
Construction					0.64												0.64
Operation	0.50	5.37	0.91	0.50		0.10	0.14	0.03	0.06	0.48	0.14	0.10	0.03	0.11	2.51		10.98
Exhaust $PM_{2.5}$		0.00	0.00	0.00	0.15	0.07	0.02	0.01	0.07	0.14							0.47
Construction					0.15												0.15
Operation		0.00	0.00	0.00		0.07	0.02	0.01	0.07	0.14							0.32
Total $PM_{2.5}$	0.50	5.37	0.91	0.50	0.79	0.17	0.16	0.05	0.13	0.62	0.14	0.10	0.03	0.11	2.51		12.09
Construction					0.79												0.79
Operation	0.50	5.37	0.91	0.50		0.17	0.16	0.05	0.13	0.62	0.14	0.10	0.03	0.11	2.51		11.30
VOC		0.00	0.00	0.00	0.30	0.14	0.05	0.02	0.14	0.28					1.34	3.52	5.79
Construction					0.30												0.30
Operation		0.00	0.00	0.00		0.14	0.05	0.02	0.14	0.28					1.34	3.52	5.49
CO		0.00	0.04	0.01	2.59	1.19	0.42	0.21	1.19	2.38					0.38	0.27	8.69
Construction					2.59												2.59
Operation		0.00	0.04	0.01		1.19	0.42	0.21	1.19	2.38					0.38	0.27	6.10
NOx		0.01	0.05	0.02	4.69	2.16	0.77	0.38	2.16	4.32					7.54		22.10
Construction					4.69												4.69
Operation		0.01	0.05	0.02		2.16	0.77	0.38	2.16	4.32					7.54		17.40
SOx		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					3.69		3.71
Construction					0.00												0.00
Operation		0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00					3.69		3.70
TACs																	
Arsenic	2.18E-05	4.07E-04	6.95E-05	3.81E-05	7.62E-05	1.32E-05	1.85E-05	4.51E-06	8.26E-06	1.91E-05	1.82E-05	1.28E-05	4.05E-06	1.42E-05			7.256E-04
Beryllium	1.09E-06	2.04E-05	3.48E-06	1.90E-06	3.81E-06	6.61E-07	9.23E-07	2.26E-07	4.13E-07	9.56E-07	9.11E-07	6.38E-07	2.03E-07	7.09E-07			3.628E-05
Cadmium	1.09E-06	2.04E-05	3.48E-06	1.90E-06	3.81E-06	6.61E-07	9.23E-07	2.26E-07	4.13E-07	9.56E-07	9.11E-07	6.38E-07	2.03E-07	7.09E-07			3.628E-05
Chromium (total)	5.46E-05	1.02E-03	1.74E-04	9.52E-05	1.91E-04	3.31E-05	4.62E-05	1.13E-05	2.06E-05	4.78E-05	4.56E-05	3.19E-05	1.01E-05	3.54E-05			1.814E-03
Copper	1.09E-04	2.04E-03	3.48E-04	1.90E-04	3.81E-04	6.61E-05	9.23E-05	2.26E-05	4.13E-05	9.56E-05	9.11E-05	6.38E-05	2.03E-05	7.09E-05			3.628E-03
Lead	5.46E-05	1.02E-03	1.74E-04	9.52E-05	1.91E-04	3.31E-05	4.62E-05	1.13E-05	2.06E-05	4.78E-05	4.56E-05	3.19E-05	1.01E-05	3.54E-05			1.814E-03
Manganese	5.46E-04	1.02E-02	1.74E-03	9.52E-04	1.91E-03	3.31E-04	4.62E-04	1.13E-04	2.06E-04	4.78E-04	4.56E-04	3.19E-04	1.01E-04	3.54E-04			1.814E-02
Mercury	5.46E-06	1.02E-04	1.74E-05	9.52E-06	1.91E-05	3.31E-06	4.62E-06	1.13E-06	2.06E-06	4.78E-06	4.56E-06	3.19E-06	1.01E-06	3.54E-06	3.86E-03	4.28E-02	4.688E-02
Nickel	2.18E-05	4.07E-04	6.95E-05	3.81E-05	7.62E-05	1.32E-05	1.85E-05	4.51E-06	8.26E-06	1.91E-05	1.82E-05	1.28E-05	4.05E-06	1.42E-05			7.256E-04
Selenium	5.46E-06	1.02E-04	1.74E-05	9.52E-06	1.91E-05	3.31E-06	4.62E-06	1.13E-06	2.06E-06	4.78E-06	4.56E-06	3.19E-06	1.01E-06	3.54E-06			1.814E-04
Silica (crystalline)	1.09E-01	2.04E+00	3.48E-01	1.90E-01	3.81E-01	6.61E-02	9.23E-02	2.26E-02	4.13E-02	9.56E-02	9.11E-02	6.38E-02	2.03E-02	7.09E-02			3.628E+00
Zinc	2.18E-04	4.07E-03	6.95E-04	3.81E-04	7.62E-04	1.32E-04	1.85E-04	4.51E-05	8.26E-05	1.91E-04	1.82E-04	1.28E-04	4.05E-05	1.42E-04			7.256E-03
Acetone		1.45E+01			3.30E+00										1.53E+01	1.70E+02	2.035E+02
Acrylonitrile															1.10E+00	1.22E+01	1.331E+01
Benzene															5.62E+00	6.24E+01	6.802E+01
Carbon disulfide															1.66E+00	1.85E+01	2.013E+01
Carbonyl sulfide															1.11E+00	1.23E+01	1.342E+01
Carbon Tetrachloride															2.32E-02	2.57E-01	2.805E-01
Chlorobenzene															1.06E+00	1.18E+01	1.283E+01
Chlorodifluoromethane															4.23E+00	4.70E+01	5.125E+01
Chloroethane (ethyl chloride)															3.04E+00	3.37E+01	3.677E+01
Chloroform															1.35E-01	1.50E+00	1.633E+00
1,4-Dichlorobenzene															1.16E+00	1.29E+01	1.408E+01
Diesel Exhaust PM		5.623E-01	4.359E+00	1.744E+00	3.053E+02	1.400E+02	4.982E+01	2.491E+01	1.400E+02	2.799E+02							9.466E+02
Ethyl benzene															1.84E+01	2.05E+02	2.231E+02
Ethylene dichloride (1,2-Dichloroethane)															1.53E+00	1.70E+01	1.850E+01
Ethylidene dichloride (1,1-Dichloroethane)															8.76E+00	9.73E+01	1.060E+02
Fluorotrichloromethane (Chlorofluorocarbons)															4.23E+00	4.70E+01	5.125E+01
Formaldehyde															1.96E+02		1.958E+02
Hexane															2.13E+01	2.37E+02	2.582E+02
Hydrogen chloride															1.08E+04		1.077E+04
Hydrogen sulfide															4.55E+01	5.06E+02	5.516E+02
Isopropyl alcohol (2-propanol)															1.13E+02	1.26E+03	1.373E+03
Methyl chloroform															2.41E+00	2.68E+01	2.920E+01
Methylene chloride															4.57E+01	5.08E+02	5.538E+02
Methyl ethyl ketone															1.92E+01	2.14E+02	2.331E+02
Perchloro-ethylene															2.33E+01	2.59E+02	2.820E+02
Propylene dichloride (1,2-dichloropropane)															7.66E-01	8.51E+00	9.273E+00
1,1,2,2-tetrachloroethane															7.01E+00	7.79E+01	8.495E+01
Toluene															1.36E+02	1.51E+03	1.651E+03
Trichloroethylene															1.39E+01	1.55E+02	1.686E+02
Vinyl acetate		3.04E+01			6.90E+00												3.728E+01
Vinyl chloride															1.73E+01	1.92E+02	2.092E+02
Vinylidene chloride (1,1-dichloroethene)															7.30E-01	8.11E+00	8.840E+00
Xylenes															4.84E+01	5.37E+02	5.857E+02
PAHs w/o Napthalene															1.80E+00		1.798E+00
Napthalene															2.55E-01		2.552E-01
Dioxins & Furans															1.73E-17		1.726E-17
Total TAC	1.10E-01	4.75E+01	4.71E+00	1.94E+00	3.16E+02	1.40E+02	4.99E+01	2.49E+01	1.40E+02	2.80E+02	9.20E-02	6.44E-02	2.04E-02	7.16E-02	1.15E+04	6.25E+03	1.88E+04

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Interim Operational Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

Toxic Emissions, CAS number, EF (ppmw)															
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	PM10 (lb/hr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	1.01		2.02E-05	1.01E-06	1.01E-06	5.05E-05	1.01E-04	5.05E-05	5.05E-04	5.05E-06	2.02E-05	5.05E-06	1.01E-01	2.02E-04	0.00E+00
Unpaved Stabilized Main Road	22.06		4.41E-04	2.21E-05	2.21E-05	1.10E-03	2.21E-03	1.10E-03	1.10E-02	1.10E-04	4.41E-04	1.10E-04	2.21E+00	4.41E-03	2.82E-03
Unpaved Main Road	3.33		6.67E-05	3.33E-06	3.33E-06	1.67E-04	3.33E-04	1.67E-04	1.67E-03	1.67E-05	6.67E-05	1.67E-05	3.33E-01	6.67E-04	2.18E-02
Unpaved Landfill Deck	1.82		3.63E-05	1.82E-06	1.82E-06	9.08E-05	1.82E-04	9.08E-05	9.08E-04	9.08E-06	3.63E-05	9.08E-06	1.82E-01	3.63E-04	8.74E-03
Stock Pile B Haul Road	1.64		3.28E-05	1.64E-06	1.64E-06	8.20E-05	1.64E-04	8.20E-05	8.20E-04	8.20E-06	3.28E-05	8.20E-06	1.64E-01	3.28E-04	1.13E-01
Stock Pile B Haul Road Ends	1.20		2.40E-05	1.20E-06	1.20E-06	6.00E-05	1.20E-04	6.00E-05	6.00E-04	6.00E-06	2.40E-05	6.00E-06	1.20E-01	2.40E-04	4.25E-02
Excavation at SPB	1.00		1.99E-05	9.97E-07	9.97E-07	4.99E-05	9.97E-05	4.99E-05	4.99E-04	4.99E-06	1.99E-05	4.99E-06	9.97E-02	1.99E-04	6.38E-02
Daily Cover Loading at SPB	1.39		2.78E-05	1.39E-06	1.39E-06	6.96E-05	1.39E-04	6.96E-05	6.96E-04	6.96E-06	2.78E-05	6.96E-06	1.39E-01	2.78E-04	2.27E-02
Daily Cover Spreading at AF	0.34		6.80E-06	3.40E-07	3.40E-07	1.70E-05	3.40E-05	1.70E-05	1.70E-04	1.70E-06	6.80E-06	1.70E-06	3.40E-02	6.80E-05	1.13E-02
Daily Cover Compaction at AF	0.62		1.25E-05	6.23E-07	6.23E-07	3.11E-05	6.23E-05	3.11E-05	3.11E-04	3.11E-06	1.25E-05	3.11E-06	6.23E-02	1.25E-04	6.38E-02
MSW Spreading and Compacting	0.88		1.77E-05	8.85E-07	8.85E-07	4.42E-05	8.85E-05	4.42E-05	4.42E-04	4.42E-06	1.77E-05	4.42E-06	8.85E-02	1.77E-04	1.28E-01
Wind Erosion (SPB Disturbed)	7.26		1.45E-04	7.26E-06	7.26E-06	3.63E-04	7.26E-04	3.63E-04	3.63E-03	3.63E-05	1.45E-04	3.63E-05	7.26E-01	1.45E-03	0.00E+00
Wind Erosion (SPB Undisturbed)	5.08		1.02E-04	5.08E-06	5.08E-06	2.54E-04	5.08E-04	2.54E-04	2.54E-03	2.54E-05	1.02E-04	2.54E-05	5.08E-01	1.02E-03	0.00E+00
Wind Erosion (Landfill Disturbed)	1.61		3.23E-05	1.61E-06	1.61E-06	8.07E-05	1.61E-04	8.07E-05	8.07E-04	8.07E-06	3.23E-05	8.07E-06	1.61E-01	3.23E-04	0.00E+00
Wind Erosion (Landfill Undisturbed)	5.65		1.13E-04	5.65E-06	5.65E-06	2.82E-04	5.65E-04	2.82E-04	2.82E-03	2.82E-05	1.13E-04	2.82E-05	5.65E-01	1.13E-03	0.00E+00
Total Hourly (lb/hr)			1.10E-03	5.49E-05	5.49E-05	2.75E-03	5.49E-03	2.75E-03	2.75E-02	2.75E-04	1.10E-03	2.75E-04	5.49E+00	1.10E-02	4.78E-01

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

Interim Operational Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

Toxic Emissions, CAS number, EF (ppmw)															
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	PM10 (lb/yr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	1.09		2.18E-05	1.09E-06	1.09E-06	5.46E-05	1.09E-04	5.46E-05	5.46E-04	5.46E-06	2.18E-05	5.46E-06	1.09E-01	2.18E-04	0.00E+00
Unpaved Stabilized Main Road	20.36		4.07E-04	2.04E-05	2.04E-05	1.02E-03	2.04E-03	1.02E-03	1.02E-02	1.02E-04	4.07E-04	1.02E-04	2.04E+00	4.07E-03	5.62E-01
Unpaved Main Road	3.48		6.95E-05	3.48E-06	3.48E-06	1.74E-04	3.48E-04	1.74E-04	1.74E-03	1.74E-05	6.95E-05	1.74E-05	3.48E-01	6.95E-04	4.36E+00
Unpaved Landfill Deck	1.90		3.81E-05	1.90E-06	1.90E-06	9.52E-05	1.90E-04	9.52E-05	9.52E-04	9.52E-06	3.81E-05	9.52E-06	1.90E-01	3.81E-04	1.74E+00
Stock Pile B Haul Road	3.05		6.10E-05	3.05E-06	3.05E-06	1.53E-04	3.05E-04	1.53E-04	1.53E-03	1.53E-05	6.10E-05	1.53E-05	3.05E-01	6.10E-04	2.47E+02
Stock Pile B Haul Road Ends	0.76		1.52E-05	7.59E-07	7.59E-07	3.80E-05	7.59E-05	3.80E-05	3.80E-04	3.80E-06	1.52E-05	3.80E-06	7.59E-02	1.52E-04	5.83E+01
Excavation at SPB	0.66		1.32E-05	6.61E-07	6.61E-07	3.31E-05	6.61E-05	3.31E-05	3.31E-04	3.31E-06	1.32E-05	3.31E-06	6.61E-02	1.32E-04	1.40E+02
Daily Cover Loading at SPB	0.92		1.85E-05	9.23E-07	9.23E-07	4.62E-05	9.23E-05	4.62E-05	4.62E-04	4.62E-06	1.85E-05	4.62E-06	9.23E-02	1.85E-04	4.98E+01
Daily Cover Spreading at AF	0.23		4.51E-06	2.26E-07	2.26E-07	1.13E-05	2.26E-05	1.13E-05	1.13E-04	1.13E-06	4.51E-06	1.13E-06	2.26E-02	4.51E-05	2.49E+01
Daily Cover Compaction at AF	0.41		8.26E-06	4.13E-07	4.13E-07	2.06E-05	4.13E-05	2.06E-05	2.06E-04	2.06E-06	8.26E-06	2.06E-06	4.13E-02	8.26E-05	1.40E+02
MSW Spreading and Compacting	0.96		1.91E-05	9.56E-07	9.56E-07	4.78E-05	9.56E-05	4.78E-05	4.78E-04	4.78E-06	1.91E-05	4.78E-06	9.56E-02	1.91E-04	2.80E+02
Wind Erosion (SPB Disturbed)	0.91		1.82E-05	9.11E-07	9.11E-07	4.56E-05	9.11E-05	4.56E-05	4.56E-04	4.56E-06	1.82E-05	4.56E-06	9.11E-02	1.82E-04	0.00E+00
Wind Erosion (SPB Undisturbed)	0.64		1.28E-05	6.38E-07	6.38E-07	3.19E-05	6.38E-05	3.19E-05	3.19E-04	3.19E-06	1.28E-05	3.19E-06	6.38E-02	1.28E-04	0.00E+00
Wind Erosion (Landfill Disturbed)	0.20		4.05E-06	2.03E-07	2.03E-07	1.01E-05	2.03E-05	1.01E-05	1.01E-04	1.01E-06	4.05E-06	1.01E-06	2.03E-02	4.05E-05	0.00E+00
Wind Erosion (Landfill Undisturbed)	0.71		1.42E-05	7.09E-07	7.09E-07	3.54E-05	7.09E-05	3.54E-05	3.54E-04	3.54E-06	1.42E-05	3.54E-06	7.09E-02	1.42E-04	0.00E+00
Total Annual (lb/yr)			7.26E-04	3.63E-05	3.63E-05	1.81E-03	3.63E-03	1.81E-03	1.81E-02	1.81E-04	7.26E-04	1.81E-04	3.63E+00	7.26E-03	9.47E+02

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

GCLF Toxics Emissions from Fugitive Landfill Gas and Flares for Interim Operational Year

Year 10 LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.166
Max. Daily Flared LFG	MM ft^3/day	3.973
Max. Yearly Flared LFG	MM ft^3/yr	1,450.01
Hours of Operation	hours/day	24
Number of Flares		2
Max. Hourly Fugitive LFG	MM ft^3/hr	0.018
Max. Daily Fugitive LFG	MM ft^3/day	0.441
Max. Yearly Fugitive LFG	MM ft^3/yr	161.11

Notes:

Max Flared LFG based on LandGEM modeling using the District's parameter's k = 0.02 yr-1 and Lo = 110.
The values are derived from an annual value of 45,621,752 m3/yr of uncontrolled LFG in Year 10.

Interim Operational Year Toxic Emissions From Fugitive Landfill Gas

Toxic Pollutant	CAS	EF (ppmv)[1]	MW (lb/mol)	Fugitive LFG Hourly Toxic Emissions (lb/hr)	Fugitive LFG Daily Toxic Emissions (lb/day)	Fugitive LFG Annual Toxic Emissions (lb/yr)
Acetone	67-64-1	7.01	58.08	1.94E-02	4.67E-01	1.70E+02
Acrylonitrile	107-13-1	0.55	53.06	1.39E-03	3.34E-02	1.22E+01
Benzene	71-43-2	1.91	78.11	7.12E-03	1.71E-01	6.24E+01
Carbon disulfide	75-15-0	0.58	76.13	2.11E-03	5.06E-02	1.85E+01
Carbonyl sulfide	463-58-1	0.49	60.07	1.41E-03	3.37E-02	1.23E+01
Carbon Tetrachloride	56-23-5	0.004	153.82	2.94E-05	7.05E-04	2.57E-01
Chloro-benzene	108-90-7	0.25	112.56	1.34E-03	3.22E-02	1.18E+01
Chlorodifluoromethane	75-45-6	1.3	86.47	5.37E-03	1.29E-01	4.70E+01
Chloroethane (ethyl chloride)	75-00-3	1.25	64.52	3.85E-03	9.24E-02	3.37E+01
Chloroform	67-66-3	0.03	119.39	1.71E-04	4.10E-03	1.50E+00
Dichlorobenzene	106-46-7	0.21	147	1.47E-03	3.54E-02	1.29E+01
Ethyl benzene	100-41-4	4.61	106.16	2.34E-02	5.61E-01	2.05E+02
Ethylene dichloride (1,2-Dichloroethane)	107-06-2	0.41	98.96	1.94E-03	4.65E-02	1.70E+01
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	2.35	98.97	1.11E-02	2.67E-01	9.73E+01
Fluorotrichloromethane (Chlorofluorocarbons)	75-69-4	1.30	86.47	5.37E-03	1.29E-01	4.70E+01
Hexane	110-54-3	6.57	86.18	2.70E-02	6.49E-01	2.37E+02
Hydrogen sulfide	7783-06-4	35.50	34.08	5.78E-02	1.39E+00	5.06E+02
Isopropyl alcohol (2-propanol)	67-63-0	50.10	60.10	1.44E-01	3.45E+00	1.26E+03
Mercury	7439-97-6	2.92E-04	350.77	4.89E-06	1.17E-04	4.28E-02
Methyl chloroform (1,1,1-Trichloroethane)	71-55-6	0.48	133.41	3.06E-03	7.34E-02	2.68E+01
Methylene chloride (Dichloromethane)	75-09-2	14.30	84.94	5.80E-02	1.39E+00	5.08E+02
Methyl ethyl ketone	78-93-3	7.09	72.10	2.44E-02	5.86E-01	2.14E+02
Perchloroethylene (Tetrachloroethylene)	127-18-4	3.73	165.83	2.95E-02	7.09E-01	2.59E+02
Propylene dichloride (1,2-dichloropropane)	78-87-5	0.18	112.99	9.71E-04	2.33E-02	8.51E+00
1,1,2,2-tetrachloroethane	79-34-5	1.11	167.85	8.90E-03	2.14E-01	7.79E+01
Toluene	108-88-3	39.30	92.13	1.73E-01	4.15E+00	1.51E+03
Trichloroethylene	79-01-6	2.82	131.14	1.77E-02	4.24E-01	1.55E+02
Vinyl chloride	75-01-4	7.34	62.50	2.19E-02	5.26E-01	1.92E+02
Vinylidene chloride (1,1-dichloroethene)	75-35-4	0.20	96.94	9.26E-04	2.22E-02	8.11E+00
Xylenes	1330-20-7	12.10	106.16	6.13E-02	1.47E+00	5.37E+02

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998. The emission factor for chlorofluorocarbons was obtained from SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99 and is assumed to incorporate fluorotrichloromethane with an EF of 0.76 ppmv in AP-42 Table 2.4-1.

2. Emission factors are calculated based on the standard default of 385.15 standard cubic feet per pound mole.

GCLF Toxics Emissions from Fugitive Landfill Gas and Flares for Interim Operational Year

Interim Operational Year Toxic Emissions From Flares Only

Toxic Emissions From Flares Only	CAS	EF (lb/MM ft^3)	Flare Hourly Toxic Emissions (lb/hr)	Flare Daily Toxic Emissions (lb/day)	Flare Annual Toxic Emissions (lb/yr)
Acetone	67-64-1	0.0106	1.75E-03	4.20E-02	1.53E+01
Acrylonitrile	107-13-1	0.0008	1.25E-04	3.01E-03	1.10E+00
Benzene	71-43-2	0.0039	6.41E-04	1.54E-02	5.62E+00
Carbon disulfide	75-15-0	0.0011	1.90E-04	4.55E-03	1.66E+00
Carbonyl sulfide	463-58-1	0.0008	1.26E-04	3.04E-03	1.11E+00
Carbon Tetrachloride	56-23-5	0.0000	2.64E-06	6.35E-05	2.32E-02
Chlorobenzene	108-90-7	0.0007	1.21E-04	2.90E-03	1.06E+00
Chlorodifluoromethane	75-45-6	0.0029	4.83E-04	1.16E-02	4.23E+00
Chloroethane (ethyl chloride)	75-00-3	0.0021	3.47E-04	8.32E-03	3.04E+00
Chloroform	67-66-3	0.0001	1.54E-05	3.69E-04	1.35E-01
Dichlorobenzene	106-46-7	0.0008	1.33E-04	3.18E-03	1.16E+00
Ethyl benzene	100-41-4	0.0127	2.10E-03	5.05E-02	1.84E+01
Ethylene dichloride (1,2-Dichloroethane)	107-06-2	0.0011	1.74E-04	4.18E-03	1.53E+00
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	0.0060	1.00E-03	2.40E-02	8.76E+00
Fluorotrichloromethane (Chlorofluorocarbons)	75-45-8	0.0029	4.83E-04	1.16E-02	4.23E+00
Formaldehyde	50-00-0	0.1350	2.23E-02	5.36E-01	1.96E+02
Hexane	110-54-3	0.0147	2.43E-03	5.84E-02	2.13E+01
Hydrogen chloride[2]	7647-01-0	7.4300	1.23E+00	2.95E+01	1.08E+04
Hydrogen sulfide	7783-06-4	0.0314	5.20E-03	1.25E-01	4.55E+01
Isopropyl alcohol (2-propanol)	67-63-0	0.0782	1.29E-02	3.11E-01	1.13E+02
Mercury	7439-97-6	2.66E-06	4.40E-07	1.06E-05	3.86E-03
Methyl chloroform	71-55-6	0.0017	2.75E-04	6.61E-03	2.41E+00
Methylene chloride	75-09-2	0.0315	5.22E-03	1.25E-01	4.57E+01
Methyl ethyl ketone	78-93-3	0.0133	2.20E-03	5.27E-02	1.92E+01
Perchloro-ethylene	127-18-4	0.0161	2.66E-03	6.38E-02	2.33E+01
Propylene dichloride (1,2-dichloropropane)	78-87-5	0.0005	8.74E-05	2.10E-03	7.66E-01
1,1,2,2-tetrachloroethane	79-34-5	0.0048	8.01E-04	1.92E-02	7.01E+00
Toluene	108-88-3	0.0940	1.56E-02	3.73E-01	1.36E+02
Trichloroethylene	79-01-6	0.0096	1.59E-03	3.81E-02	1.39E+01
Vinyl chloride	75-01-4	0.0119	1.97E-03	4.73E-02	1.73E+01
Vinylidene chloride (1,1-dichloroethene)	75-35-4	0.0005	8.33E-05	2.00E-03	7.30E-01
Xylenes	1330-20-7	0.0334	5.52E-03	1.32E-01	4.84E+01
PAHs w/o Napthalene	1151	0.0012	2.05E-04	4.93E-03	1.80E+00
Napthalene	91-20-3	0.0002	2.91E-05	6.99E-04	2.55E-01
Dioxins & Furans	1086	1.19E-20	1.97E-21	4.73E-20	1.73E-17

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998, assuming 99% destruction removal efficiency (DRE). The emission factor for chlorofluorocarbons was obtained from SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99 and is assumed to incorporate fluorotrichloromethane with an EF of 0.76 ppmv in AP-42 Table 2.4-1, then assumes 99% DRE. Emission factors for formaldehyde and hydrochloric acid were obtained from SDAPCD Calculation Method L04 - Landfill Gas Default Composition, dated 8/24/99, where formaldehyde is based on EPA VOC speciation profile #1001, 1/90 and HCL is based on AP-42 raw landfill gas content with a 98% DRE.

2. Emissions are assumed to be controlled by the flare at 99% DRE, with the exception of HCL, where 98% DRE is assumed.

Interim Operational Year Annual & Hourly Solitac (Sealer Application) Product Toxic Emissions (lb/yr & lb/hr)

									Toxic Emissions, CAS number, EF (ppmw)			
									Annual Emission (lb/yr)		Hourly Emission (lb/hr)	
									Acetone	Vinyl Acetate	Acetone	Vinyl Acetate
									67-64-1	108-05-4	67-64-1	108-05-4
Source	**One-Way Road Length (ft)**	**Road Width (ft)**	**Road Area (ft^2)**	**Soiltac Application for Mix-In (gal/ft^2 rd)**	**Soiltac Application for Quarterly Sealant (gal/ft^2 rd)**	**Total Soiltac Usage (gal/yr)**	**Days of Application**	**EF (mg/L)**	**110**	**230**	**110**	**230**
Unpaved Stabilized Main Road (Quarterly Sealant)	9,900	40	396,000		0.01	15,840	4		1.45E+01	3.04E+01	3.30E-01	6.90E-01
Borrow Area B Haul Road (Initial Mix-In)	1,800	20	36,000	0.07		2,520	2		2.31E+00	4.83E+00	--	--
Borrow Area B Haul Road (Quarterly Sealant)	1,800	20	36,000		0.01	1,080	1		9.91E-01	2.07E+00	--	--
Total									1.78E+01	3.73E+01	3.30E-01	6.90E-01

1) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Year 10 as placed on an aerial overlay of the landfill area.

2) Soiltac application rate data (undiluted quantity) as provided by the manufacturer.

3) Initial mix-in of Soiltac road stabilizer is assumed to have occurred in a previous year for the main stabilized road. Sealant is applied quarterly (4 times in Interim Operational Year). Initial mix-in on the BAB haul road is assumed to occur in the first quarter and quarterly sealant will be applied in the remaining 3 quarters. The hourly emissions are based on quarterly sealing on the Main Stabilized road, since the road length is much greater than the BAB road. Quarterly sealing and mix-in will occur on separate days.

4) Toxic emission factors as defined by a Solitac product test in 2004. According to the manufacturer, the product was contaminated by a residual product from another manufacturer when samples were collected from the tanker truck. The manufacturer performed more recent testing in 2010, where the product was taken directly from the manufacturing facility in glass bottles and VOCs, including acetone and vinyl acetate, were non-detect during lab testing.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Interim Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor[1]	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation/ripping	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:
1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[2] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from SPB/BAB to landfill	20.300	BCY/trip	100.0	0.131	2.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAB Excavation/ripping	600.0	BCY/hr	--	--	1.0
Dozer	Landfill Waste Spreading	900.0	BCY/hr			1.0
Compactor	Compacting Waste (MSW)	2728.0	CCY/hr			1.0
Compactor	DC Compacting Cover	1705.0	CCY/hr			1.0

Emissions by Equipment

Source	Use	Diesel PM-10			Diesel PM-2.5		
		lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.149	1.637	326.6	0.149	1.637	326.6
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.023	0.250	49.8	0.023	0.250	49.8
Grader	Haul Road Maintenance	0.051	0.051	10.3	0.051	0.051	10.3
Dozer	Excavation/ripping	0.064	0.701	140.0	0.064	0.701	140.0
Dozer	Waste Spreading	0.064	0.701	140.0	0.064	0.701	140.0
Compactor	Compacting Waste	0.064	0.701	140.0	0.064	0.701	140.0
Compactor	Compacting Cover	0.064	0.701	140.0	0.064	0.701	140.0
	Diesel Equipment Exhaust Total	**0.478**	**4.744**	**946.6**	**0.478**	**4.744**	**946.6**

Table Notes:
1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area

Area	Diesel PM-10			Diesel PM-2.5		
	lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Main UP	0.022	0.022	4.36	0.022	0.022	4.36
Main UPS	0.0028	0.0028	0.56	0.0028	0.0028	0.56
Main UP Deck	0.009	0.009	1.74	0.009	0.009	1.74
BAB Haul	0.113	1.238	246.979	0.113	1.238	246.979
BAB UNS	0.042	0.292	58.349	0.042	0.292	58.349
BABOPS - Excavation[1]	0.064	0.701	139.97	0.064	0.70	139.97
BABOPS - DC Loading[1]	0.023	0.250	49.822	0.023	0.250	49.82
LFOPS - Spread MSW	0.064	0.701	139.97	0.064	0.701	139.97
LFOPS - Compact MSW	0.064	0.701	139.97	0.064	0.701	139.97
LFOPS - Daily Cover Unload/Spread	0.011	0.125	24.91	0.011	0.125	24.91
LFOPS - Compacting Daily Cover	0.064	0.701	139.97	0.064	0.701	139.97
Diesel Equipment Exhaust Total	0.478	4.744	946.62	0.48	4.74	946.62

Division of Emissions

Area	Scraper		Grader	
	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	58.14	42.5%
Main UPS	--	--	7.50	5.5%
Main UP Deck	--	--	23.26	17.0%
BAB Haul	1,800	65.6%	1.4	1.0%
BAB UNS[1]	400	14.57%	46.5	34.0%
BAB Loading	363	13.2%	--	--
Daily Cover Unloading/Spread	182	6.6%	--	--
Totals	**2,744.88**	**100.0%**	**137**	**100.0%**

Table Notes:
1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Main Unpaved DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.022	0.022
Daily Emissions	lb/day	0.022	0.022
Annual Emissions	lb/year	4.359	4.359

Main Unpaved Stabilized DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.0028	0.0028
Daily Emissions	lb/day	0.0028	0.0028
Annual Emissions	lb/year	0.562	0.562

Main Unpaved Deck DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.0087	0.0087
Daily Emissions	lb/day	0.0087	0.0087
Annual Emissions	lb/year	1.744	1.744

BAB Haul DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.113	0.113
Daily Emissions	lb/day	1.238	1.238
Annual Emissions	lb/year	246.979	246.979

BAB UNS DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.042	0.042
Daily Emissions	lb/day	0.292	0.292
Annual Emissions	lb/year	58.349	58.349

SPBOPS - Excavation DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.09	0.09
Daily Emissions	lb/day	0.95	0.95
Annual Emissions	lb/year	189.80	189.80

LFOPS DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.20	0.20
Daily Emissions	lb/day	2.23	2.23
Annual Emissions	lb/year	444.83	444.83

GCLF Off-Road Vehicle Diesel Particulate Emissions for Interim Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp) [1]	Load Factor [1]	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation/ripping	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr) [1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[2] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Emission Factors

Rating (bhp)	ROG (g/bhp-hr)	CO[1] (g/bhp-hr)	Nox (g/bhp-hr)	SO2 (g/bhp-hr)	PM10 (g/bhp-hr)	PM2.5[2] (g/bhp-hr)
Scraper (Tractor Engine)	0.3	2.59	4.7	4.88E-03	0.15	0.15
Scraper (Scraper Engine)	0.3	2.59	4.7	4.88E-03	0.15	0.15
Grader	0.3	3.7	4.7	4.87E-03	0.22	0.22
Dozer	0.3	2.59	4.7	4.88E-03	0.15	0.15
Dozer	0.3	2.59	4.7	4.88E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.88E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.88E-03	0.15	0.15

1. Based on Tier 2 emission standards specified in USEPA's Emission Standards Reference Guide: Nonroad Compression-Ignition Engines -- Exhaust Emission Standards

Estimate No. of Equipment

Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Movement from SPB/BAB to landfill	20.300	BCY/trip	100.0	0.131	2.0
Haul Road Maintenance	--	--	--	--	1.0
BAB Excavation/ripping	600.0	BCY/hr	--	--	1.0
Landfill Waste Spreading	900.0	BCY/hr			1.0
Compacting Waste (MSW)	2728.0	CCY/hr			1.0
DC Compacting Cover	1705.0	CCY/hr			1.0

Emissions by Equipment (lb/hr)

Source	Use	Pollutant					
		ROG	CO	Nox	SO2	PM10	PM2.5[2]
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.298	2.569	4.663	0.005	0.149	0.149
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.045	0.392	0.711	0.001	0.023	0.023
Grader	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation/ripping	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	Waste Spreading	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Waste	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Cover	0.128	1.101	1.998	0.002	0.064	0.064
	Diesel Equipment Exhaust Total	**0.923**	**8.230**	**14.464**	**0.015**	**0.478**	**0.478**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment (lb/day), Max Daily

Source	Use	Pollutant					
		ROG	CO	Nox	SO2	PM10	PM2.5[2]
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	3.274	28.264	51.290	0.053	1.637	1.637
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.499	4.311	7.824	0.008	0.250	0.250
Grader	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation/ripping	1.403	12.112	21.979	0.023	0.701	0.701
Dozer	Waste Spreading	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Waste	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Cover	1.403	12.112	21.979	0.023	0.701	0.701
	Diesel Equipment Exhaust Total	**9.455**	**81.886**	**148.126**	**0.154**	**4.744**	**4.744**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment (tons/yr), Average Annual

Source	Use						
		ROG	CO	Nox	SO2	PM10	PM2.5[2]
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.322	2.777	5.039	0.005	0.161	0.161
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.049	0.424	0.769	0.001	0.025	0.025
Grader	Haul Road Maintenance	0.007	0.085	0.108	0.000	0.005	0.005
Dozer	Excavation/ripping	0.138	1.190	2.159	0.002	0.069	0.069
Dozer	Waste Spreading	0.138	1.190	2.159	0.002	0.069	0.069
Compactor	Compacting Waste	0.138	1.190	2.159	0.002	0.069	0.069
Compactor	Compacting Cover	0.138	1.190	2.159	0.002	0.069	0.069
	Diesel Equipment Exhaust Total	**0.929**	**8.044**	**14.552**	**0.015**	**0.466**	**0.466**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area: Hourly (lb/hr)

Area	Pollutant					
	ROG	CO	Nox	SO2	PM10	PM2.5[2]
Main UP	0.030	0.367	0.467	0.000	0.022	0.022
Main UPS	0.0038	0.0474	0.0602	0.0001	0.0028	0.0028
Main UP Deck	0.012	0.147	0.187	0.000	0.009	0.009
BAB Haul	0.226	1.951	3.535	0.004	0.113	0.113
BAB UNS	0.074	0.725	1.156	0.001	0.042	0.042
BABOPS - Excavation[3]	0.128	1.101	1.998	0.002	0.064	0.064
BABOPS - DC Loading[3]	0.045	0.392	0.711	0.001	0.023	0.023
LFOPS - Spread MSW	0.128	1.101	1.998	0.002	0.064	0.064
LFOPS - Compact MSW	0.128	1.101	1.998	0.002	0.064	0.064
LFOPS - Daily Cover Unload/Spread	0.023	0.196	0.356	0.000	0.011	0.011
LFOPS - Compacting Daily Cover	0.128	1.101	1.998	0.002	0.064	0.064
Diesel Equipment Exhaust Total	0.923	8.230	14.464	0.015	0.478	0.48

Emissions by Area: Daily (lb/day)

Area	Pollutant					
	ROG	CO	Nox	SO2	PM10	PM2.5[2]
Main UP	0.030	0.367	0.467	0.000	0.022	0.022
Main UPS	0.0038	0.0474	0.0602	0.0001	0.0028	0.0028
Main UP Deck	0.012	0.147	0.187	0.000	0.009	0.009
BAB Haul	2.475	21.370	38.776	0.040	1.238	1.238
BAB UNS	0.574	5.041	8.988	0.009	0.292	0.292
BABOPS - Excavation[3]	1.403	12.112	21.979	0.023	0.701	0.70
BABOPS - DC Loading[3]	0.499	4.311	7.823	0.008	0.250	0.250
LFOPS - Spread MSW	1.403	12.112	21.979	0.023	0.701	0.701
LFOPS - Compact MSW	1.403	12.112	21.979	0.023	0.701	0.701
LFOPS - Daily Cover Unload/Spread	0.250	2.155	3.912	0.004	0.125	0.125
LFOPS - Compacting Daily Cover	1.403	12.112	21.979	0.023	0.701	0.701
Diesel Equipment Exhaust Total	9.45	81.89	148.13	0.15	4.74	4.74

Emissions by Area: Annual (tpy)

Area	Pollutant					
	ROG	CO	Nox	SO2	PM10	PM2.5[2]
Main UP	0.00	0.04	0.05	0.00	0.00	0.00
Main UPS	0.00	0.00	0.01	0.00	0.00	0.00
Main UP Deck	0.00	0.01	0.02	0.00	0.00	0.00
BAB Haul	0.243	2.099	3.809	0.004	0.122	0.122
BAB UNS	0.056	0.495	0.883	0.001	0.029	0.029
BABOPS - Excavation[3]	0.14	1.19	2.16	0.00	0.07	0.07
BABOPS - DC Loading[3]	0.049	0.424	0.769	0.001	0.025	0.02
LFOPS - Spread MSW	0.14	1.19	2.16	0.00	0.07	0.07
LFOPS - Compact MSW	0.14	1.19	2.16	0.00	0.07	0.07
LFOPS - Daily Cover Unload/Spread	0.02	0.21	0.38	0.00	0.01	0.01
LFOPS - Compacting Daily Cover	0.14	1.19	2.16	0.00	0.07	0.07
Diesel Equipment Exhaust Total	0.93	8.04	14.55	0.02	0.47	0.47

Division of Emissions

Area	Scraper		Grader	
	VMT/yr[4]	% of Emissions	VMT/yr[4]	% of Emissions
Main UP	--	--	58.14	42.5%
Main UPS	--	--	7.50	5.5%
Main UP Deck	--	--	23.26	17.0%
BAB Haul	1,800	65.6%	1.4	1.0%
BAB UNS[1]	400	14.57%	46.5	34.0%
BAB Loading	363	13.2%	--	--
Daily Cover Unloading/Spread	182	6.6%	--	--
Totals	**2,744.88**	**100.0%**	**137**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

GCLF Emissions from the Paved Main Road for Interim Operational Year

Paved Road equation from AP-42 (1/1995) Section 13.2.1 with additional speed factor

$EF=k(sL/2)^{0.65}(W/3)^{1.5}(S/SF)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.016	0.007
Particle Size Multiplier (k)		0.016	0.0073
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Loading (sL)	g/m^2	0.4	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Speed Factor (SF)	mph	32.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	2,800
Trucks per day	trucks/day	675
Daily VMT	VMT/day	716
Annual VMT	VMT/yr	140679.68

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.01	0.46
Daily Emissions	lb/day	11.12	5.07
Annual Emissions	ton/yr	1.09	0.50

Notes:

1) Paved road emission factor is calculated with the paved road equation in AP-42 Section 13.2.1 (1/1995), with an additional speed factor, where trucks travel an average of 7.5 mph, without control efficiency. However, measures such as sweeping and other track out controls will be employed.

2) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.

4) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Silt loading (sL) value is based on 95% control and the AP-42 Table 13.2.1-3 mean silt loading value of 7.4 g/m^2 for municipal solid waste landfills. Control will be achieved through a combination of sweeping, track-out programs, and other measures as necessary.

6) The $PM_{2.5}$ emission factor is based on AP-42 Section 13.2.2, (1/1995), where the particle size multiplier, k value, in Table 13.2.1.3 is 0.0073 lb/VMT (Note: This value is more conservative than the new AP-42 Section 13.2.1 (1/2006), with a k value of 0.0024 lb/VMT).

GCLF Emissions from the Unpaved Stabilized Main Road for Interim Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.082	0.022
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)		15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	9,900
Trucks per day	trucks/day	675
Daily VMT	VMT/day	2531.25
Annual VMT	VMT/yr	497340

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	18.83	4.97
Daily Emissions	lb/day	207.16	54.67
Annual Emissions	ton/yr	20.35	5.37

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.

4) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Silt value was the district default of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

6) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	9,900
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	7.50

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.23	0.36
Daily Emissions	lb/day	3.23	0.36
Annual Emissions	ton/yr	0.01	0.00

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.

3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unpaved Unstabilized Main Road for Interim Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.273	0.072
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance unpaved road	feet	500
Max Trucks per day	trucks/day	675
Daily VMT	VMT/day	128
Annual VMT	VMT/year	25118

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.17	0.84
Daily Emissions	lb/day	34.88	9.20
Annual Emissions	ton/yr	3.43	0.90

Notes:
1) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	500
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.018
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	ton/yr	0.05	0.01

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Unpaved Unstabilized Landfill Deck Road for Interim Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.376	0.099
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	20.7	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	200
Trucks per day	trucks/day	675
Daily VMT	VMT/day	51
Annual VMT	VMT/yr	10047

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.75	0.46
Daily Emissions	lb/day	19.25	5.08
Annual Emissions	ton/yr	1.89	0.50

Notes:

1) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.
2) One way road distance is considered 200 feet of deck.
3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.
4) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.
5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	200
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.08
Annual VMT	VMT/yr	15

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0652	0.00724
Daily Emissions	lb/day	0.130	0.0145
Annual Emissions	ton/yr	0.01	0.001

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance is considered 200 feet of deck.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Borrow Area B Haul Road for Interim Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	1,800
Average load	BCY/scraper	20.3
Scrapers per day		91
Other scrapers per day		9
Max Daily Soil	CY/day	1,852
Daily VMT	VMT/day	68
Scrapers per year		11,002
Other scrapers per year		1,100
Soil	CY/year	223,333
Annual VMT	VMT/year	8,251

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.05	0.28
Daily Emissions	lb/day	11.60	3.06
Annual Emissions	ton/yr	0.70	0.19

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency for chemical stabilization. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	1,800
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	1.36

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.59	0.07
Daily Emissions	lb/day	0.59	0.07
Annual Emissions	lb/year	2.35	0.26

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Interim Operational Year.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Borrow Area B Haul Road for Interim Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.784	0.207
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	21	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	BCY/scraper	20.3
Scrapers per day		91
Other scrapers per day		9
Max Daily Soil	CY/day	1,852
Daily VMT	VMT/day	15
Scrapers per year		11,002
Other scrapers per year		1,100
Soil	CY/year	223,333
Annual VMT	VMT/year	1,834

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.07	0.28
Daily Emissions	lb/day	11.77	3.11
Annual Emissions	ton/yr	0.72	0.19

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A silt value of 20.7% is derived for material originating from the landfill area and will be used for the landfill deck and haul road ends that cannot be stabilized. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.00

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from Excavation at Stockpile B for Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled	lbs/1000 BCY	8.19	1.23	0.15
Emission Factor, controlled	lbs/1000 BCY	5.92	0.89	
Hours of Operation	hours/day	11		
Operational Days per Year	days/year	307		
Daily Excavation volume	CY/day	1,852		
Annual Excavation volume	CY/year	223,333		

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.00	0.15
Daily Emissions	lb/day	10.97	1.65
Annual Emissions	ton/yr	0.66	0.10

Notes:

1) In Year 10, 324,868 CY of soil is excavated from SPB for daily cover use, based on information from Volume IV - AEI Appendix F, October 2008.

2) Emission factors based on SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. Emission factor was adjusted to account for 20.7% silt. A silt value of 20.7% is derived for material originating from the landfill area. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to excavation.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Daily Cover Operations for Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading Scraper at Stockpile B				
Emission Factor, uncontrolled	lbs/1000 BCY	70.11	10.52	0.15
Emission Factor, controlled	lbs/1000 BCY	8.27	1.24	
Unloading Scraper at the Working Face of the Landfill				
Emission Factor, uncontrolled	lbs/1000 BCY	17.45	2.62	
Emission Factor, controlled	lbs/1000 BCY	2.02	0.30	
Compacting Daily Cover at Working Face of the Landfill				
Emission Factor, controlled	lbs/1000 CCY	3.70	0.55	
Hours of Operation	hours	11		
Operational Days per Year	days/year	307		
Max Daily Cover Soil	CY/day	1,852		
Annual Cover Soil	CY/year	223,333		

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading Scraper at Stockpile B			
Hourly Emissions	lb/hour	1.39	0.21
Daily Emissions	lb/day	15.31	2.30
Annual Emissions	ton/yr	0.92	0.14
Unloading Scraper at the Working Face of the Landfill			
Hourly Emissions	lb/hour	0.34	0.05
Daily Emissions	lb/day	3.74	0.56
Annual Emissions	ton/yr	0.23	0.03
Compacting Daily Cover at Working Face of Landfill			
Hourly Emissions	lb/hour	0.62	0.09
Daily Emissions	lb/day	6.85	1.03
Annual Emissions	ton/yr	0.41	0.06

Notes:

1) Emission factors based on SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. Emission factor was adjusted to account for 20.7% silt. A silt value of 20.7% is derived for material originating from the landfill area. This value is based on a weighted average of rippable rock and geometric mean average of the landfill area topsoil & weathered rock, as shown in the Gregory Canyon Landfill Excavation Material Quantification and Estimated Silt Content of Fill/Cover Materials tables dated May 2010.

2) Soil parameters are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Criteria Emissions from Fugitive Landfill Gas for Interim Operational Year

Interim Operational Year LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.11
Max. Daily Flared LFG	MM ft^3/day	2.8
Max. Yearly Flared LFG	MM ft^3/yr	1,006
Hours of Operation	hours/day	24
Number of Flares		2
Max. Hourly Fugitive LFG	MM ft^3/hr	0.006
Max. Daily Fugitive LFG	MM ft^3/day	0.145
Max. Yearly Fugitive LFG	MM ft^3/yr	53

Interim Operational Year Criteria Pollutant Emissions From Fugitive Landfill Gas

Fugitive LFG (MM ft^3/hr)	Fugitive LFG (MM ft^3/yr)	Hourly Criteria Pollutant Emissions (lbs/hr)		Annual Criteria Pollutant Emissions (tons/yr)	
		CO	VOC	CO	VOC
		141	**595**	**141**	**595**
		28.01	**86.17**	**28.01**	**86.17**
0.006	53	0.06	0.80	0.27	3.52

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998.

GCLF Emissions from Municipal Solid Waste Operations for Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
MSW Spreading				
Emission Factor, uncontrolled	lbs/1000 LCY	0.36	0.18	0.50
Emission Factor, controlled	lbs/1000 LCY	0.36	0.18	
Emission Factor, uncontrolled	lbs/1000 tons	1.37	0.69	
Emission Factor, controlled	lbs/1000 tons	1.37	0.69	
Average Dozing Distance	feet	100	100	
Maximum Capacity	LCY/hr	1946.1	1946.1	
Wet Density, lb/LCY	lb/LCY	525	525	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	1.00	1.00	
Material Compaction Factor	CCY/BCY	0.39	0.39	
Adjusted Capacity	LCY/hr	1459.5	1459.5	
Silt, %	%	12.7	12.7	
Moisture Content (Uncontrolled)		19.6	19.6	
Moisture Content (Controlled)		19.6	19.6	
MSW Compactor Travel				
Emission Factor, uncontrolled	lb/1,000 CCY	0.19	0.10	0.50
Emission Factor, controlled	lb/1,000 CCY	0.19	0.10	
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143	
Emission Factor, controlled	lb/1,000 tons	0.286	0.143	
MSW Compaction				
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143	
Emission Factor, controlled	lb/1,000 tons	0.286	0.143	
Compactor Wt.	lb	113,350	113,350	
Lift Thickness (Compacted)	in	12	12	
Normal Operation Speed	mph	8	8	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	7.5	7.5	
Compactor Width per Pass	ft	9.3	9.3	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	525	525	
Wet Density	lb/LCY	525	525	
Wet Density	lb/CCY	1350	1350	
Material Volume Change	BCY/LCY	1	1	
Material Compaction Factor	CCY/BCY	0.39	0.39	
Max Capacity	CCY/hr	2728	2728	
Adjusted Capacity	CCY/hr	2728	2728	
Silt	%	12.7	12.7	
Moisture Content, Uncontrolled	%	19.6	19.6	
Moisture Content, Controlled	%	19.6	19.6	
Hours of Operation	hours	11	11	

E=EF x MSWM x 1000

E = Emissions (lbs/day (year))
EF = Emission Factor (lbs/1000 tons)
MSWM = MSW Mass (tons/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Spreading and Compacting MSW			
Hourly Emissions	lb/hour	0.88	0.44
Daily Emissions	lb/day	9.73	4.88
Annual Emissions	ton/yr	0.96	0.48

Notes:
1) Emission factors based on Steve Moore's construction emission spreadsheet, dated 11/25/09.
2) Load factors are from Caterpillar Performance Handbook, 33d edition, 2002, pg 26-4, liner--natural bed clay, rock--
3) Compaction factors are from Army Field Manual FM 5-434, 1994, Table 1-1
4) Speed and number of passes from Army Field Manual FM 5-434, 1994, Table 11-3
5) MSW silt content and moisture content from EPA-450/3-89-019, May, 1989, Table 5-2, pg 5-9.
6) MSW uncompacted (in-truck) density (lb/LCY) based on recommended default density for residential rear loaders
7) MSW compacted density (lb/CCY) based on proposed in-place density in the application and EIR, 1350 lb/cy^3.
8) MSW compaction ratio based on compacting waste waste from in-truck density to in-place density.
9) MSW compacted lift thickness estimated from thickness range necessary to achieve the compacted density,
10) MSW number of passes based on using Caterpillar 836G and method in "Determining Remaining Permitted
11) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.
12) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Landfill Gas Flares for Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Emission Factor	lb/MM ft^3	10	10	30	1.5	7.34	2.66
Max. Hourly Flared LFG	MM ft^3/hr	0.115	0.115	0.115	0.115	0.115	0.115
Max. Daily Flared LFG	MM ft^3/day	2.756	2.756	2.756	2.756	2.756	2.756
Max. Yearly Flared LFG	MM ft^3/yr	1,005.80	1,005.80	1,005.80	1,005.80	1,005.80	1,005.80
Methane Fraction of LFG	%	50%	50%	50%	50%	--	--
Hours of Operation	hours/day	24	24	24	24	24	24
Number of Flares		2	2	2	2	2	2

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Hourly Emissions	lb/hour	0.57	0.57	1.72	0.09	0.84	0.31
Daily Emissions	lb/day	13.78	13.78	41.33	2.07	20.23	7.33
Annual Emissions	ton/yr	2.5	2.5	7.5	0.4	3.7	1.3

$E = EF \times F_{LFG}$

E= Emissions (lbs/day)

EF = Emission Factor (lb/MM ft^3)

F_{LFG} = Flared LFG (MM ft^3/day)

Notes:

1) Emission factor for $PM_{10}/PM_{2.5}$ of 10 lb/MMft^3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where TSP = 0.020 lb/MMBtu and PM_{10} = TSP.

2) Emission factor for NOx of 30 lb/MMft3 based on BACT for Enclosed Flares - SDAPCD ATC for adding one landfill gas flare system at Sycamore Landfill (Application No. 980163).

3) Emission factor for CO of 1.5 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where CO = 0.003 lb/MMBtu.

4) Emission factor for SOx of 7.34 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 raw gas sulfur content and a 98% conversion rate.

5) Emission factor for VOC/ROG of 2.66 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 Section 2.4, (9/1997), Table 2.4-1, and assumes 595 ppmv as hexane and a 98% DRE.

6) Max Flared LFG based on LandGEM modeling using the District's parameter's k = 0.02 yr-1 and Lo = 110. The values are derived from an annual value of 45,621,752 m3/yr of uncontrolled LFG in Interim Operational Year.

7) Number of flares is based on a total fuel throughput rating of 1500 scfm per flare. Two (2) flares are needed in Interim Operational Year.

8) To be conservative, it is assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

GCLF Emissions from Wind Erosion for Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.5376	30.3806	
Emission Factor, Undisturbed	lb/acre-hour	0.5649	0.0847	
Emission Factor, Undisturbed	lb/acre-year	141.7764	21.2665	
Hours of Operation	hours/day	24		
Operational Days per Year	days/year	365		
Frequency of Wind over threshold	hours/year	0.029		
Stockpile B Disturbed Area	acres	9		
Stockpile B Undisturbed, Unvegetated Areas	acres	9		
Landfill Area Disturbed Area	acres	2		
Landfill Area Undisturbed, Unvegetated Areas	acres	10		

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Disturbed Area - SPB			
Hourly Emissions	lb/hour	7.26	1.09
Daily Emissions	lb/day	174.32	26.15
Annual Emissions	ton/yr	0.91	0.14
Undisturbed, Unvegetated Area - SPB			
Hourly Emissions	lb/hour	5.08	0.76
Daily Emissions	lb/day	122.03	18.30
Annual Emissions	ton/yr	0.64	0.10
Disturbed Area - Landfill Area			
Hourly Emissions	lb/hour	1.61	0.24
Daily Emissions	lb/day	38.74	5.81
Annual Emissions	ton/yr	0.20	0.03
Undisturbed, Unvegetated Area - Landfill Area			
Hourly Emissions	lb/hour	5.65	0.85
Daily Emissions	lb/day	135.59	20.34
Annual Emissions	ton/yr	0.71	0.11

E=EF x A

E= Emissions (lbs/day)
EF = Emission Factor (lb/acre-day)
A = Exposed Area (acres)

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.
2) 9 acres undisturbed, unvegetated area in Stockpile B is from prior year activity, 9 acres disturbed area in Stockpile B is from current year activity. Stockpile B is used over a period of approximately 7 years, for an approximate acreage of 9 acres per year. 2 acres disturbed area in the landfill is the active area of the landfill. The landfill is used over 30 years for an approximate acreage of 6 acres per year. 10 acres undisturbed, unvegetated area is 6 acres from the prior year plus 4 acres of the current year that is not actively being used.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, $k(PM_{2.5}) = 0.2$ and $k(PM_{10}) = 0.5$. In the 11/2006 version, $k(PM_{2.5}) = 0.075$ and $k(PM_{10}) = 0.5$.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

Hourly Emissions for Future Interim Operational Year

Pounds per Hour (lb/hr)

	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Main Road (1)	Unpaved Landfill Deck (1)	Borrow Area B Haul Road (1)	Excavation at BAB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (BAB Disturbed)	Wind Erosion (BAB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Rock Crushing	Drilling	Blasting (BAB)	Flares	Landfill Gas Fugitive	Total (lbs/hr)
Fugitive PM_{10}	1.01	18.94	3.33	2.86	3.93	2.01	2.32	0.54	1.14	0.88	3.63	2.54	1.61	5.65	0.71	0.00	1.03	1.33		53.48
Exhaust PM_{10}		0.00	0.02	0.01	0.18	0.06	0.00	0.00	0.06	0.13										0.47
Total PM_{10}	1.01	18.94	3.36	2.86	4.11	2.07	2.33	0.54	1.20	1.01	3.63	2.54	1.61	5.65	0.71	0.00	1.03	1.33		53.96
Fugitive $PM_{2.5}$	0.46	4.57	0.85	0.74	0.90	0.30	0.35	0.08	0.17	0.44	0.54	0.38	0.24	0.85	0.19	0.00	0.06	1.33		12.48
Exhaust $PM_{2.5}$		0.00	0.02	0.01	0.18	0.06	0.00	0.00	0.06	0.13										0.47
Total $PM_{2.5}$	0.46	4.58	0.88	0.75	1.08	0.36	0.35	0.08	0.23	0.57	0.54	0.38	0.24	0.85	0.19	0.00	0.06	1.33		12.95
VOC		0.00	0.03	0.01	0.35	0.13	0.01	0.00	0.13	0.26								0.71	1.86	3.48
CO		0.04	0.37	0.15	3.08	1.10	0.08	0.04	1.10	2.20							67.00	0.20	0.14	75.51
NOx		0.05	0.47	0.19	5.43	2.00	0.15	0.07	2.00	4.00							17.00	3.99		35.33
SOx		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00							2.00	1.95		3.97
TACs																				
Aluminum																	2.17E-02			2.172E-02
Arsenic	2.02E-05	3.79E-04	6.67E-05	5.71E-05	7.87E-05	4.01E-05	4.64E-05	1.08E-05	2.28E-05	1.77E-05	7.26E-05	5.08E-05	3.23E-05	1.13E-04	1.43E-05	0.00E+00	1.55E-05			1.038E-03
Barium																	1.24E-04			1.241E-04
Beryllium	1.01E-06	1.89E-05	3.33E-06	2.86E-06	3.93E-06	2.01E-06	2.32E-06	5.42E-07	1.14E-06	8.85E-07	3.63E-06	2.54E-06	1.61E-06	5.65E-06	7.13E-07	0.00E+00	1.03E-06			5.215E-05
Cadmium	1.01E-06	1.89E-05	3.33E-06	2.86E-06	3.93E-06	2.01E-06	2.32E-06	5.42E-07	1.14E-06	8.85E-07	3.63E-06	2.54E-06	1.61E-06	5.65E-06	7.13E-07	0.00E+00	1.03E-06			5.215E-05
Chromium (total)	5.05E-05	9.47E-04	1.67E-04	1.43E-04	1.97E-04	1.00E-04	1.16E-04	2.71E-05	5.70E-05	4.42E-05	1.82E-04	1.27E-04	8.07E-05	2.82E-04	3.56E-05	0.00E+00	4.76E-05			2.604E-03
Cobalt																	1.86E-05			1.861E-05
Copper	1.01E-04	1.89E-03	3.33E-04	2.86E-04	3.93E-04	2.01E-04	2.32E-04	5.42E-05	1.14E-04	8.85E-05	3.63E-04	2.54E-04	1.61E-04	5.65E-04	7.13E-05	0.00E+00	9.72E-05			5.209E-03
Lead	5.05E-05	9.47E-04	1.67E-04	1.43E-04	1.97E-04	1.00E-04	1.16E-04	2.71E-05	5.70E-05	4.42E-05	1.82E-04	1.27E-04	8.07E-05	2.82E-04	3.56E-05	0.00E+00	3.10E-05			2.587E-03
Manganese	5.05E-04	9.47E-03	1.67E-03	1.43E-03	1.97E-03	1.00E-03	1.16E-03	2.71E-04	5.70E-04	4.42E-04	1.82E-03	1.27E-03	8.07E-04	2.82E-03	3.56E-04	0.00E+00	5.84E-04			2.614E-02
Mercury	5.05E-06	9.47E-05	1.67E-05	1.43E-05	1.97E-05	1.00E-05	1.16E-05	2.71E-06	5.70E-06	4.42E-06	1.82E-05	1.27E-05	8.07E-06	2.82E-05	3.56E-06	0.00E+00	0.00E+00	7.07E-07	3.72E-06	2.600E-04
Nickel	2.02E-05	3.79E-04	6.67E-05	5.71E-05	7.87E-05	4.01E-05	4.64E-05	1.08E-05	2.28E-05	1.77E-05	7.26E-05	5.08E-05	3.23E-05	1.13E-04	1.43E-05	0.00E+00	3.10E-05			1.053E-03
Selenium	5.05E-06	9.47E-05	1.67E-05	1.43E-05	1.97E-05	1.00E-05	1.16E-05	2.71E-06	5.70E-06	4.42E-06	1.82E-05	1.27E-05	8.07E-06	2.82E-05	3.56E-06	0.00E+00	1.03E-06			2.566E-04
Silica (crystalline)	1.01E-01	1.89E+00	3.33E-01	2.86E-01	3.93E-01	2.01E-01	2.32E-01	5.42E-02	1.14E-01	8.85E-02	3.63E-01	2.54E-01	1.61E-01	5.65E-01	7.13E-02	0.00E+00	1.03E-01			5.215E+00
Zinc	2.02E-04	3.79E-03	6.67E-04	5.71E-04	7.87E-04	4.01E-04	4.64E-04	1.08E-04	2.28E-04	1.77E-04	7.26E-04	5.08E-04	3.23E-04	1.13E-03	1.43E-04	0.00E+00	1.03E-04			1.033E-02
Acetone		2.83E-01			0.00E+00													2.81E-03	1.48E-02	3.011E-01
Acrylonitrile																		2.01E-04	1.06E-03	1.261E-03
Benzene																		1.03E-03	5.42E-03	6.446E-03
Carbon disulfide																		3.05E-04	1.60E-03	1.908E-03
Carbonyl sulfide																		2.03E-04	1.07E-03	1.272E-03
Carbon Tetrachloride																		4.24E-06	2.23E-05	2.659E-05
Chlorobenzene																		1.94E-04	1.02E-03	1.216E-03
Chlorodifluoromethane																		7.76E-04	4.08E-03	4.857E-03
Chloroethane (ethyl chloride)																		5.56E-04	2.93E-03	3.485E-03
Chloroform																		2.47E-05	1.30E-04	1.548E-04
Dichlorobenzene																		2.13E-04	1.12E-03	1.334E-03
Diesel Exhaust PM		2.43E-03	2.20E-02	8.78E-03	1.79E-01	6.38E-02	4.72E-03	2.36E-03	6.38E-02	1.28E-01										4.743E-01
Ethyl benzene																		3.38E-03	1.78E-02	2.115E-02
Ethylene dichloride (1,2-Dichloroethane)																		2.80E-04	1.47E-03	1.753E-03
Ethylidene dichloride (1,1-Dichloroethane)																		1.60E-03	8.44E-03	1.005E-02
Fluorotrichloromethane (Chlorofluorocarbons)																		7.76E-04	4.08E-03	4.857E-03
Formaldehyde																		3.59E-02		3.587E-02
Hexane																		3.91E-03	2.06E-02	2.446E-02
Hydrogen chloride2																		1.97E+00		1.974E+00
Hydrogen sulfide																		8.35E-03	4.39E-02	5.228E-02
Isopropyl alcohol (2-propanol)																		2.08E-02	1.09E-01	1.301E-01
Methyl chloroform																		4.42E-04	2.33E-03	2.767E-03
Methylene chloride																		8.38E-03	4.41E-02	5.248E-02
Methyl ethyl ketone																		3.53E-03	1.86E-02	2.209E-02
Perchloro-ethylene																		4.27E-03	2.25E-02	2.673E-02
Propylene dichloride (1,2-dichloropropane)																		1.40E-04	7.38E-04	8.788E-04
1,1,2,2-tetrachloroethane																		1.29E-03	6.77E-03	8.050E-03
Toluene																		2.50E-02	1.31E-01	1.564E-01
Trichloroethylene																		2.55E-03	1.34E-02	1.598E-02
Vinyl acetate		5.93E-01			0.00E+00															5.927E-01
Vinyl chloride																		3.16E-03	1.67E-02	1.982E-02
Vinylidene chloride (1,1-dichloroethene)																		1.34E-04	7.04E-04	8.377E-04
Xylenes																		8.86E-03	4.66E-02	5.550E-02
PAHs w/o Napthalene																		3.29E-04		3.295E-04
Napthalene																		4.68E-05		4.677E-05
Dioxins & Furans																		3.16E-21		3.162E-21
Total TAC	1.02E-01	2.79E+00	3.58E-01	2.97E-01	5.76E-01	2.66E-01	2.39E-01	5.71E-02	1.79E-01	2.17E-01	3.67E-01	2.57E-01	1.63E-01	5.70E-01	7.19E-02	0.00E+00	1.26E-01	2.11E+00	5.43E-01	9.29E+00

Note: 1) Total road emissions include vehicle travel and grading operations.

Daily Emissions for Future Interim Operational Year

Pounds per Day (lb/day)

	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Main Road (1)	Unpaved Landfill Deck (1)	Borrow Area B Haul Road (1)	Excavation at BAB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (BAB Disturbed)	Wind Erosion (BAB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Rock Crushing	Drilling	Blasting (BAB)	Flares	Landfill Gas Fugitive	Total (lbs/day)
Fugitive PM_{10}	11.12	180.64	35.20	30.82	34.60	22.08	25.53	5.96	12.53	9.73	87.16	61.01	38.74	135.59	7.84	0.00	1.03	31.89		731.49
Exhaust PM_{10}		0.00	0.02	0.01	1.79	0.70	0.05	0.03	0.70	1.40										4.70
Total PM_{10}	11.12	180.64	35.22	30.83	36.39	22.78	25.59	5.99	13.24	11.14	87.16	61.01	38.74	135.59	7.84	0.00	1.03	31.89		736.19
Fugitive $PM_{2.5}$	5.07	47.24	9.24	8.11	8.98	3.31	3.83	0.89	1.88	4.88	13.07	9.15	5.81	20.34	2.10	0.00	0.06	31.89		175.86
Exhaust $PM_{2.5}$		0.00	0.02	0.01	1.79	0.70	0.05	0.03	0.70	1.40										4.70
Total $PM_{2.5}$	5.07	47.25	9.26	8.12	10.76	4.01	3.88	0.92	2.58	6.28	13.07	9.15	5.81	20.34	2.10	0.00	0.06	31.89		180.56
VOC		0.00	0.03	0.01	3.56	1.40	0.10	0.05	1.40	2.81								16.96	44.68	71.02
CO		0.04	0.37	0.15	30.84	12.11	0.90	0.45	12.11	24.22							67.00	4.78	3.44	156.41
NOx		0.05	0.47	0.19	55.80	21.98	1.63	0.81	21.98	43.96							17.00	95.66		259.52
SOx		0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.02	0.05							2.00	46.81		48.96
TACs																				
Diesel Exhaust PM		2.43E-03	2.20E-02	8.78E-03	1.79E+00	7.01E-01	5.19E-02	2.60E-02	7.01E-01	1.40E+00										4.703E+00
Vinyl acetate		2.61E+01			3.53E+00															2.961E+01
Total TAC	0.00E+00	2.61E+01	2.20E-02	8.78E-03	5.32E+00	7.01E-01	5.19E-02	2.60E-02	7.01E-01	1.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E+01

Note: 1) Total road emissions include vehicle travel and grading operations.

Annual Emissions for Future Interim Operational Year

tons per year (tpy)

	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Main Road (1)	Unpaved Landfill Deck (1)	Borrow Area B Haul Road (1)	Excavation at BAB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (BAB Disturbed)	Wind Erosion (BAB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Rock Crushing	Drilling	Blasting (BAB)	Flares	Landfill Gas Fugitive	Total (ton/yr)
Fugitive PM_{10}	1.09	17.48	3.48	3.04	2.09	1.33	1.54	0.36	0.76	0.96	0.46	0.32	0.20	0.71	0.11	0.00	0.01	5.82		39.74
Exhaust PM_{10}		0.00	0.00	0.00	0.18	0.07	0.01	0.00	0.07	0.14										0.46
Total PM_{10}	1.09	17.48	3.48	3.04	2.26	1.40	1.54	0.36	0.82	1.09	0.46	0.32	0.20	0.71	0.11	0.00	0.01	5.82		40.21
Fugitive $PM_{2.5}$	0.50	4.61	0.91	0.80	0.54	0.20	0.23	0.05	0.11	0.48	0.07	0.05	0.03	0.11	0.03	0.00	0.00	5.82		14.54
Exhaust $PM_{2.5}$		0.00	0.00	0.00	0.18	0.07	0.01	0.00	0.07	0.14										0.46
Total $PM_{2.5}$	0.50	4.61	0.91	0.80	0.72	0.27	0.24	0.06	0.18	0.62	0.07	0.05	0.03	0.11	0.03	0.00	0.00	5.82		15.00
VOC		0.00	0.00	0.00	0.35	0.14	0.01	0.01	0.14	0.28								3.10	8.15	12.17
CO		0.00	0.04	0.01	3.03	1.19	0.09	0.04	1.19	2.38							0.74	0.87	0.63	10.21
NOx		0.01	0.05	0.02	5.48	2.16	0.16	0.08	2.16	4.32							0.19	17.46		32.07
SOx		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00							0.02	8.54		8.58
TACs																				
Aluminum																	2.39E-04			2.389E-04
Arsenic	2.18E-05	3.50E-04	2.07E-03	6.07E-05	4.17E-05	2.66E-05	3.08E-05	7.19E-06	1.51E-05	1.91E-05	9.11E-06	6.38E-06	4.05E-06	1.42E-05	2.22E-06	7.99E-08	1.71E-07			2.679E-03
Barium																	1.37E-06			1.365E-06
Beryllium	1.09E-06	1.75E-05	1.04E-04	3.04E-06	2.09E-06	1.33E-06	1.54E-06	3.60E-07	7.56E-07	9.56E-07	4.56E-07	3.19E-07	2.03E-07	7.09E-07	1.11E-07	3.99E-09	1.14E-08			1.340E-04
Cadmium	1.09E-06	1.75E-05	1.04E-04	3.04E-06	2.09E-06	1.33E-06	1.54E-06	3.60E-07	7.56E-07	9.56E-07	4.56E-07	3.19E-07	2.03E-07	7.09E-07	1.11E-07	3.99E-09	1.14E-08			1.340E-04
Chromium (total)	5.46E-05	8.74E-04	5.18E-03	1.52E-04	1.04E-04	6.66E-05	7.70E-05	1.80E-05	3.78E-05	4.78E-05	2.28E-05	1.59E-05	1.01E-05	3.54E-05	5.54E-06	2.00E-07	5.23E-07			6.698E-03
Cobalt																	2.05E-07			2.048E-07
Copper	1.09E-04	1.75E-03	1.04E-02	3.04E-04	2.09E-04	1.33E-04	1.54E-04	3.60E-05	7.56E-05	9.56E-05	4.56E-05	3.19E-05	2.03E-05	7.09E-05	1.11E-05	3.99E-07	1.07E-06			1.340E-02
Lead	5.46E-05	8.74E-04	5.18E-03	1.52E-04	1.04E-04	6.66E-05	7.70E-05	1.80E-05	3.78E-05	4.78E-05	2.28E-05	1.59E-05	1.01E-05	3.54E-05	5.54E-06	2.00E-07	3.41E-07			6.698E-03
Manganese	5.46E-04	8.74E-03	5.18E-02	1.52E-03	1.04E-03	6.66E-04	7.70E-04	1.80E-04	3.78E-04	4.78E-04	2.28E-04	1.59E-04	1.01E-04	3.54E-04	5.54E-05	2.00E-06	6.43E-06			6.698E-02
Mercury	5.46E-06	8.74E-05	5.18E-04	1.52E-05	1.04E-05	6.66E-06	7.70E-06	1.80E-06	3.78E-06	4.78E-06	2.28E-06	1.59E-06	1.01E-06	3.54E-06	5.54E-07	2.00E-08	0.00E+00	6.19E-03	3.26E-02	3.944E-02
Nickel	2.18E-05	3.50E-04	2.07E-03	6.07E-05	4.17E-05	2.66E-05	3.08E-05	7.19E-06	1.51E-05	1.91E-05	9.11E-06	6.38E-06	4.05E-06	1.42E-05	2.22E-06	7.99E-08	3.41E-07			2.679E-03
Selenium	5.46E-06	8.74E-05	5.18E-04	1.52E-05	1.04E-05	6.66E-06	7.70E-06	1.80E-06	3.78E-06	4.78E-06	2.28E-06	1.59E-06	1.01E-06	3.54E-06	5.54E-07	2.00E-08	1.14E-08			6.697E-04
Silica (crystalline)	1.09E-01	1.75E+00	1.04E+01	3.04E-01	2.09E-01	1.33E-01	1.54E-01	3.60E-02	7.56E-02	9.56E-02	4.56E-02	3.19E-02	2.03E-02	7.09E-02	1.11E-02	3.99E-04	1.14E-03			1.340E+01
Zinc	2.18E-04	3.50E-03	2.07E-02	6.07E-04	4.17E-04	2.66E-04	3.08E-04	7.19E-05	1.51E-04	1.91E-04	9.11E-05	6.38E-05	4.05E-05	1.42E-04	2.22E-05	7.99E-07	1.14E-06			2.679E-02
Acetone		1.25E+01			1.69E+00													2.46E+01	1.30E+02	1.683E+02
Acrylonitrile																		1.76E+00	9.28E+00	1.105E+01
Benzene																		9.02E+00	4.75E+01	5.647E+01
Carbon disulfide																		2.67E+00	1.40E+01	1.671E+01
Carbonyl sulfide																		1.78E+00	9.36E+00	1.114E+01
Carbon Tetrachloride																		3.72E-02	1.96E-01	2.329E-01
Chlorobenzene																		1.70E+00	8.95E+00	1.065E+01
Chlorodifluoromethane																		6.79E+00	3.58E+01	4.255E+01
Chloroethane (ethyl chloride)																		4.87E+00	2.57E+01	3.053E+01
Chloroform																		2.16E-01	1.14E+00	1.356E+00
Dichlorobenzene																		1.87E+00	9.82E+00	1.168E+01
Diesel Exhaust PM		4.78E-01	4.31E+00	1.73E+00	3.51E+02	1.38E+02	1.02E+01	5.10E+00	1.38E+02	2.76E+02										9.241E+02
Ethyl benzene																		2.96E+01	1.56E+02	1.852E+02
Ethylene dichloride (1,2-Dichloroethane)																		2.45E+00	1.29E+01	1.536E+01
Ethylidene dichloride (1,1-Dichloroethane)																		1.41E+01	7.40E+01	8.803E+01
Fluorotrichloromethane (Chlorofluorocarbons)																		6.79E+00	3.58E+01	4.255E+01
Formaldehyde																		3.14E+02		3.142E+02
Hexane																		3.42E+01	1.80E+02	2.143E+02
Hydrogen chloride2																		1.73E+04		1.729E+04
Hydrogen sulfide																		7.31E+01	3.85E+02	4.579E+02
Isopropyl alcohol (2-propanol)																		1.82E+02	9.58E+02	1.140E+03
Methyl chloroform																		3.87E+00	2.04E+01	2.424E+01
Methylene chloride																		7.34E+01	3.86E+02	4.598E+02
Methyl ethyl ketone																		3.09E+01	1.63E+02	1.935E+02
Perchloro-ethylene																		3.74E+01	1.97E+02	2.341E+02
Propylene dichloride (1,2-dichloropropane)																		1.23E+00	6.47E+00	7.698E+00
1,1,2,2-tetrachloroethane																		1.13E+01	5.93E+01	7.052E+01
Toluene																		2.19E+02	1.15E+03	1.370E+03
Trichloroethylene																		2.23E+01	1.18E+02	1.400E+02
Vinyl acetate		2.61E+01			3.53E+00															2.961E+01
Vinyl chloride																		2.77E+01	1.46E+02	1.736E+02
Vinylidene chloride (1,1-dichloroethene)																		1.17E+00	6.17E+00	7.339E+00
Xylenes																		7.76E+01	4.09E+02	4.862E+02
PAHs w/o Napthalene																		2.89E+00		2.886E+00
Napthalene																		4.10E-01		4.097E-01
Dioxins & Furans																		2.77E-17		2.770E-17
Total TAC	1.10E-01	4.08E+01	1.48E+01	2.03E+00	3.56E+02	1.38E+02	1.04E+01	5.14E+00	1.38E+02	2.76E+02	4.60E-02	3.22E-02	2.04E-02	7.16E-02	1.12E-02	4.03E-04	1.39E-03	1.85E+04	4.75E+03	2.43E+04

Note: 1) Total road emissions include vehicle travel and grading operations.

Year 25 Hourly Particulate Matter Based Toxic Emissions (lb/hr)

Future Interim Operational Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	**PM10 (lb/hr)**	**EF (ppmw)**	**20**	**1**	**1**	**50**	**100**	**50**	**500**	**5**	**20**	**5**	**100000**	**200**	**--**
Paved Main Road	1.01		2.02E-05	1.01E-06	1.01E-06	5.05E-05	1.01E-04	5.05E-05	5.05E-04	5.05E-06	2.02E-05	5.05E-06	1.01E-01	2.02E-04	0.00E+00
Unpaved Stabilized Main Road	18.94		3.79E-04	1.89E-05	1.89E-05	9.47E-04	1.89E-03	9.47E-04	9.47E-03	9.47E-05	3.79E-04	9.47E-05	1.89E+00	3.79E-03	2.43E-03
Unpaved Main Road	3.33		6.67E-05	3.33E-06	3.33E-06	1.67E-04	3.33E-04	1.67E-04	1.67E-03	1.67E-05	6.67E-05	1.67E-05	3.33E-01	6.67E-04	2.20E-02
Unpaved Landfill Deck	2.86		5.71E-05	2.86E-06	2.86E-06	1.43E-04	2.86E-04	1.43E-04	1.43E-03	1.43E-05	5.71E-05	1.43E-05	2.86E-01	5.71E-04	8.78E-03
Borrow Area B Haul Road	2.10		4.20E-05	2.10E-06	2.10E-06	1.05E-04	2.10E-04	1.05E-04	1.05E-03	1.05E-05	4.20E-05	1.05E-05	2.10E-01	4.20E-04	1.38E-01
Borrow Area B Haul Road Ends	1.84		3.67E-05	1.84E-06	1.84E-06	9.18E-05	1.84E-04	9.18E-05	9.18E-04	9.18E-06	3.67E-05	9.18E-06	1.84E-01	3.67E-04	4.14E-02
Excavation at BAB	2.01		4.01E-05	2.01E-06	2.01E-06	1.00E-04	2.01E-04	1.00E-04	1.00E-03	1.00E-05	4.01E-05	1.00E-05	2.01E-01	4.01E-04	6.38E-02
Daily Cover Loading at SPB	2.32		4.64E-05	2.32E-06	2.32E-06	1.16E-04	2.32E-04	1.16E-04	1.16E-03	1.16E-05	4.64E-05	1.16E-05	2.32E-01	4.64E-04	4.72E-03
Daily Cover Spreading at AF	0.54		1.08E-05	5.42E-07	5.42E-07	2.71E-05	5.42E-05	2.71E-05	2.71E-04	2.71E-06	1.08E-05	2.71E-06	5.42E-02	1.08E-04	2.36E-03
Daily Cover Compaction at AF	1.14		2.28E-05	1.14E-06	1.14E-06	5.70E-05	1.14E-04	5.70E-05	5.70E-04	5.70E-06	2.28E-05	5.70E-06	1.14E-01	2.28E-04	6.38E-02
MSW Spreading and Compacting	0.88		1.77E-05	8.85E-07	8.85E-07	4.42E-05	8.85E-05	4.42E-05	4.42E-04	4.42E-06	1.77E-05	4.42E-06	8.85E-02	1.77E-04	1.28E-01
Rock Crushing	0.71		1.43E-05	7.13E-07	7.13E-07	3.56E-05	7.13E-05	3.56E-05	3.56E-04	3.56E-06	1.43E-05	3.56E-06	7.13E-02	1.43E-04	0.00E+00
Drilling	0.00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Wind Erosion (BAB Disturbed)	3.63		7.26E-05	3.63E-06	3.63E-06	1.82E-04	3.63E-04	1.82E-04	1.82E-03	1.82E-05	7.26E-05	1.82E-05	3.63E-01	7.26E-04	0.00E+00
Wind Erosion (BAB Undisturbed)	2.54		5.08E-05	2.54E-06	2.54E-06	1.27E-04	2.54E-04	1.27E-04	1.27E-03	1.27E-05	5.08E-05	1.27E-05	2.54E-01	5.08E-04	0.00E+00
Wind Erosion (Landfill Disturbed)	1.61		3.23E-05	1.61E-06	1.61E-06	8.07E-05	1.61E-04	8.07E-05	8.07E-04	8.07E-06	3.23E-05	8.07E-06	1.61E-01	3.23E-04	0.00E+00
Wind Erosion (Landfill Undisturbed)	5.65		1.13E-04	5.65E-06	5.65E-06	2.82E-04	5.65E-04	2.82E-04	2.82E-03	2.82E-05	1.13E-04	2.82E-05	5.65E-01	1.13E-03	0.00E+00
Total Hourly (lb/hr)			1.02E-03	5.11E-05	5.11E-05	2.56E-03	5.11E-03	2.56E-03	2.56E-02	2.56E-04	1.02E-03	2.56E-04	5.11E+00	1.02E-02	4.74E-01

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

ture Interim Operational Year Annual Particulate Matter Based Toxic Emissions (lb/

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	**PM10 (lb/yr)**	**EF (ppmw)**	**20**	**1**	**1**	**50**	**100**	**50**	**500**	**5**	**20**	**5**	**100000**	**200**	**--**
Paved Main Road	1.09		2.18E-05	1.09E-06	1.09E-06	5.46E-05	1.09E-04	5.46E-05	5.46E-04	5.46E-06	2.18E-05	5.46E-06	1.09E-01	2.18E-04	0.00E+00
Unpaved Stabilized Main Road	17.48		3.50E-04	1.75E-05	1.75E-05	8.74E-04	1.75E-03	8.74E-04	8.74E-03	8.74E-05	3.50E-04	8.74E-05	1.75E+00	3.50E-03	4.78E-01
Unpaved Main Road	103.51		2.07E-03	1.04E-04	1.04E-04	5.18E-03	1.04E-02	5.18E-03	5.18E-02	5.18E-04	2.07E-03	5.18E-04	1.04E+01	2.07E-02	4.31E+00
Unpaved Landfill Deck	3.04		6.07E-05	3.04E-06	3.04E-06	1.52E-04	3.04E-04	1.52E-04	1.52E-03	1.52E-05	6.07E-05	1.52E-05	3.04E-01	6.07E-04	1.73E+00
Borrow Area B Haul Road	0.90		1.80E-05	9.00E-07	9.00E-07	4.50E-05	9.00E-05	4.50E-05	4.50E-04	4.50E-06	1.80E-05	4.50E-06	9.00E-02	1.80E-04	2.96E+02
Borrow Area B Haul Road Ends	1.19		2.37E-05	1.19E-06	1.19E-06	5.93E-05	1.19E-04	5.93E-05	5.93E-04	5.93E-06	2.37E-05	5.93E-06	1.19E-01	2.37E-04	5.49E+01
Excavation at BAB	1.33		2.66E-05	1.33E-06	1.33E-06	6.66E-05	1.33E-04	6.66E-05	6.66E-04	6.66E-06	2.66E-05	6.66E-06	1.33E-01	2.66E-04	1.38E+02
Daily Cover Loading at SPB	1.54		3.08E-05	1.54E-06	1.54E-06	7.70E-05	1.54E-04	7.70E-05	7.70E-04	7.70E-06	3.08E-05	7.70E-06	1.54E-01	3.08E-04	1.02E+01
Daily Cover Spreading at AF	0.36		7.19E-06	3.60E-07	3.60E-07	1.80E-05	3.60E-05	1.80E-05	1.80E-04	1.80E-06	7.19E-06	1.80E-06	3.60E-02	7.19E-05	5.10E+00
Daily Cover Compaction at AF	0.76		1.51E-05	7.56E-07	7.56E-07	3.78E-05	7.56E-05	3.78E-05	3.78E-04	3.78E-06	1.51E-05	3.78E-06	7.56E-02	1.51E-04	1.38E+02
MSW Spreading and Compacting	0.96		1.91E-05	9.56E-07	9.56E-07	4.78E-05	9.56E-05	4.78E-05	4.78E-04	4.78E-06	1.91E-05	4.78E-06	9.56E-02	1.91E-04	2.76E+02
Rock Crushing	0.11		2.22E-06	1.11E-07	1.11E-07	5.54E-06	1.11E-05	5.54E-06	5.54E-05	5.54E-07	2.22E-06	5.54E-07	1.11E-02	2.22E-05	0.00E+00
Drilling	0.00		7.99E-08	3.99E-09	3.99E-09	2.00E-07	3.99E-07	2.00E-07	2.00E-06	2.00E-08	7.99E-08	2.00E-08	3.99E-04	7.99E-07	0.00E+00
Wind Erosion (BAB Disturbed)	0.46		9.11E-06	4.56E-07	4.56E-07	2.28E-05	4.56E-05	2.28E-05	2.28E-04	2.28E-06	9.11E-06	2.28E-06	4.56E-02	9.11E-05	0.00E+00
Wind Erosion (BAB Undisturbed)	0.32		6.38E-06	3.19E-07	3.19E-07	1.59E-05	3.19E-05	1.59E-05	1.59E-04	1.59E-06	6.38E-06	1.59E-06	3.19E-02	6.38E-05	0.00E+00
Wind Erosion (Landfill Disturbed)	0.20		4.05E-06	2.03E-07	2.03E-07	1.01E-05	2.03E-05	1.01E-05	1.01E-04	1.01E-06	4.05E-06	1.01E-06	2.03E-02	4.05E-05	0
Wind Erosion (Landfill Undisturbed)	0.71		1.42E-05	7.09E-07	7.09E-07	3.54E-05	7.09E-05	3.54E-05	3.54E-04	3.54E-06	1.42E-05	3.54E-06	7.09E-02	1.42E-04	0
Total Annual (lb/yr)			2.68E-03	1.34E-04	1.34E-04	6.70E-03	1.34E-02	6.70E-03	6.70E-02	6.70E-04	2.68E-03	6.70E-04	1.34E+01	2.68E-02	9.24E+02

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

Future Interim Operational Year Annual & Hourly Solitac (Sealer Application) Product Toxic Emissions (lb/yr & lb/hr)

								Toxic Emissions, CAS number, EF (ppmw)			
								Annual Emission (lb/yr)		Hourly Emission (lb/hr)	
								Acetone	Vinyl Acetate	Acetone	Vinyl Acetate
								67-64-1	108-05-4	67-64-1	108-05-4
Source	**One-Way Road Length (ft)**	**Road Width (ft)**	**Road Area (ft^2)**	**Soiltac Application for Mix-In (gal/ft^2 rd)**	**Soiltac Application for Quarterly Sealant (gal/ft^2 rd)**	**Total Soiltac Usage (gal/yr)**	**EF (mg/L)**	**110**	**230**	**110**	**230**
Unpaved Stabilized Main Road (Quarterly Sealant)	8,500	40	340,000		0.01	13,600		1.25E+01	2.61E+01	2.83E-01	5.93E-01
Borrow Area B Haul Road (Quarterly Sealant)	2,300	20	46,000		0.01	1,840		1.69E+00	3.53E+00		
Total								1.42E+01	2.96E+01	2.83E-01	5.93E-01

1) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for Future Interim Operational Year as placed on an aerial overlay of the landfill area.

2) Soiltac application rate data (undiluted quantity) as provided by the manufacturer.

3) Initial mix-in of Soiltac road stabilizer is assumed to have occurred in a previous year for the main stabilized road and borrow area B stabilized road. Sealant is applied quarterly (4 times in Future Interim Operational Year). The hourly emissions are based on quarterly sealant on the main stabilized road, as sealing of BAB road will occur on a different day, with less product application.

4) Toxic emission factors as defined by a Solitac product test in 2004. According to the manufacturer, the product was contaminated by a residual product from another manufacturer when samples were collected from the tanker truck. The manufacturer performed more recent testing in 2010, where the product was taken directly from the manufacturing facility in glass bottles and VOCs, including acetone and vinyl acetate, were non-detect during lab testing.

Future Interim Operational Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

Toxic Emissions, CAS number, EF (ppmw)																
			Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc
			7429-90-5	7440-38-2	7440-39-3	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6
Source	PM10 (lb/hr)	EF (ppmw)	21,000	15	120	1	1	46	18	94	30	565	0	30	1	100,000	100
Blasting	1.03		2.17E-02	1.55E-05	1.24E-04	1.03E-06	1.03E-06	4.76E-05	1.86E-05	9.72E-05	3.10E-05	5.84E-04	0.00E+00	3.10E-05	1.03E-06	1.03E-01	1.03E-04
Total Hourly (lb/hr)			2.17E-02	1.55E-05	1.24E-04	1.03E-06	1.03E-06	4.76E-05	1.86E-05	9.72E-05	3.10E-05	5.84E-04	0.00E+00	3.10E-05	1.03E-06	1.03E-01	1.03E-04

Future Interim Operational Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

Toxic Emissions, CAS number, EF (ppmw)																	
			Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc
			7429-90-5	7440-38-2	7440-39-3	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6
Source	PM10 (lb/yr)	EF (ppmw)	21,000	15	120	1	1	46	18	94	30	565	0	30	1	100,000	100
Blasting	0.0		2.39E-04	1.71E-07	1.37E-06	1.14E-08	1.14E-08	5.23E-07	2.05E-07	1.07E-06	3.41E-07	6.43E-06	0.00E+00	3.41E-07	1.14E-08	1.14E-03	1.14E-06
Total Annual (lb/yr)			2.39E-04	1.71E-07	1.37E-06	1.14E-08	1.14E-08	5.23E-07	2.05E-07	1.07E-06	3.41E-07	6.43E-06	0.00E+00	3.41E-07	1.14E-08	1.14E-03	1.14E-06

Notes:

1. Emission factors are based on SDAPCD Calculation Method D04 - Wet Drilling and Blasting Operations, Ammonium Nitrate with Fuel Oil, dated 8/25/99. This document contains APCD local test results, showing ppmw values for the compounds shown in these tables.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Future Interim Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	MSW Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting MSW	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:
1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[2] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:
1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from BAB to landfill	20.300	BCY/trip	100.0	0.156	2.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAB Excavation	600.0	BCY/hr	--	--	1.0
Dozer	MSW Spreading	900.0	BCY/hr			1.0
Compactor	Compacting MSW	2728.0	CCY/hr			1.0
Compactor	Compacting Cover	1705.0	CCY/hr			1.0

Emissions by Equipment

Source	Use	Diesel PM-10			Diesel PM-2.5		
		lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.149	1.637	321.6	0.149	1.637	321.6
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.019	0.209	41.1	#REF!	#REF!	#REF!
Grader	Haul Road Maintenance	0.051	0.051	10.1	0.051	0.051	10.1
Dozer	BAB Excavation	0.064	0.701	137.8	0.064	0.701	137.8
Dozer	MSW Spreading	0.064	0.701	137.8	0.064	0.701	137.8
Compactor	Compacting MSW	0.064	0.701	137.8	0.064	0.701	137.8
Compactor	Compacting Cover	0.064	0.701	137.8	0.064	0.701	137.8
	Diesel Equipment Exhaust Tota	**0.474**	**4.703**	**924.1**	**#REF!**	**#REF!**	**#REF!**

Table Notes:
1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area

Area	Diesel PM-10			Diesel PM-2.5		
	lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Main UP	0.022	0.022	4.31	0.022	0.022	4.31
Main UPS	0.002	0.002	0.48	0.002	0.002	0.48
Main UP Deck	0.009	0.009	1.73	0.009	0.009	1.73
BAB Haul	0.138	1.507	296.10	#REF!	#REF!	#REF!
BAB UNS	0.041	0.280	54.94	#REF!	#REF!	#REF!
BABOPS - Excavation	0.064	0.701	137.82	0.064	0.701	137.82
BABOPS - DC Loading	0.005	0.052	10.20	#REF!	#REF!	#REF!
LFOPS - Spread MSW	0.064	0.701	137.82	0.064	0.701	137.82
LFOPS - Compact MSW	0.064	0.701	137.82	0.064	0.701	137.82
LFOPS - Daily Cover Unload/Spread	0.002	0.026	5.10	#REF!	#REF!	#REF!
LFOPS - Compacting Daily Cover	0.064	0.701	137.82	0.064	0.701	137.82
Diesel Equipment Exhaust Tota	0.474	4.703	924.1	#REF!	#REF!	#REF!

Division of Emissions

Area	Scraper		Grader	
	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	58.14	42.7%
Main UPS	--	--	6.44	4.7%
Main UP Deck	--	--	23.26	17.1%
BAB Haul	10,543	81.6%	1.7	1.3%
BAB UNS[1]	1,834	14.2%	46.5	34.2%
BAB Loading	363	2.8%	--	--
Daily Cover Unloading/Spread	182	1.4%	--	--
Totals	**12,921.88**	**100.0%**	**136.1**	**100.0%**

Table Notes:
1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Main Unpaved OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.022	0.022
Daily Emissions	lb/day	0.022	0.022
Annual Emissions	lb/year	4.314	4.314
Volumes in Model		#REF!	#REF!
Daily Emission Rate (ER)	g/s	0.000251477	0.000251477
Daily ER per model volume	g/s	#REF!	#REF!
Annual Emission Rate	g/s	0.00015786	0.00015786
Annual ER per model volume	g/s	#REF!	#REF!

Main Unpaved Stabilized OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0024	0.0024
Daily Emissions	lb/day	0.0024	0.0024
Annual Emissions	lb/year	0.478	0.478
Volumes in Model		#REF!	#REF!
Daily Emission Rate (ER)	g/s	2.78509E-05	2.78509E-05
Daily ER per model volume	g/s	#REF!	#REF!
Annual Emission Rate	g/s	1.74829E-05	1.74829E-05
Annual ER per model volume	g/s	#REF!	#REF!

Main Unpaved Deck OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0088	0.0088
Daily Emissions	lb/day	0.0088	0.0088
Annual Emissions	lb/year	1.725	1.725
Volumes in Model		#REF!	#REF!
Daily Emission Rate (ER)	g/s	0.000100591	0.000100591
Daily ER per model volume	g/s	#REF!	#REF!
Annual Emission Rate	g/s	6.31441E-05	6.31441E-05
Annual ER per model volume	g/s	#REF!	#REF!

BAB Haul OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.138	#REF!
Daily Emissions	lb/day	1.507	#REF!
Annual Emissions	lb/year	296.103	#REF!
Volumes in Model		#REF!	#REF!
Daily Emission Rate (ER)	g/s	0.017262078	#REF!
Daily ER per model volume	g/s	#REF!	#REF!
Annual Emission Rate	g/s	0.010835952	#REF!
Annual ER per model volume	g/s	#REF!	#REF!

BAB UNS OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.041	#REF!
Daily Emissions	lb/day	0.280	#REF!
Annual Emissions	lb/year	54.937	#REF!
Volumes in Model		#REF!	#REF!
Daily Emission Rate (ER)	g/s	0.003202683	#REF!
Daily ER per model volume	g/s	#REF!	#REF!
Annual Emission Rate	g/s	0.002010426	#REF!
Annual ER per model volume	g/s	#REF!	#REF!

BABOPS - Excavation & Loading OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.07	#REF!
Daily Emissions	lb/day	0.75	#REF!
Annual Emissions	lb/year	148.02	#REF!
Daily Emission Rate	g/s	0.00862907	#REF!
Annual Emission Rate	g/s	0.00541674	#REF!

LFOPS OPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.19	#REF!
Daily Emissions	lb/day	2.13	#REF!
Annual Emissions	lb/year	418.56	#REF!
Daily Emission Rate	g/s	0.024400967	#REF!
Annual Emission Rate	g/s	0.015317259	#REF!

GCLF Off-Road Vehicle Diesel Particulate Emissions for Future Interim Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp) [1]	Load Factor	Output (bhp)	Operating Schedule hrs/day	Operating Schedule days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	MSW Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting MSW	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:
1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr) [1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5 [2] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:
1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

	ROG (g/bhp-hr)	CO (g/bhp-hr)	Nox (g/bhp-hr)	SO2 (g/bhp-hr)	PM10 (g/bhp-hr)	PM2.5 [2] (g/bhp-hr)
Scraper (Tractor Engine)	0.300	2.59	4.700	0.004875265	0.15	0.15
Scraper (Scraper Engine)	0.300	2.59	4.700	0.004875265	0.15	0.15
Grader	0.300	3.7	4.700	0.004872265	0.22	0.22
Dozer	0.300	2.59	4.700	0.004875265	0.15	0.15
Dozer	0.300	2.59	4.700	0.004875265	0.15	0.15
Compactor	0.300	2.59	4.700	0.004875265	0.15	0.15
Compactor	0.300	2.59	4.700	0.004875265	0.15	0.15

1. Based on Tier 2 emission standards specified in USEPA's Emission Standards Reference Guide: Nonroad Compression-Ignition Engines – Exhaust Emission Standards

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from BAB to landfill	20.300	BCY/trip	100.0	0.156	2.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAB Excavation	600.0	BCY/hr	--	--	1.0
Dozer	MSW Spreading	900.0	BCY/hr			1.0
Compactor	Compacting MSW	2728.0	CCY/hr			1.0
Compactor	Compacting Cover	1705.0	CCY/hr			1.0

Emissions by Equipment(lb/hr)

Source	Use	ROG	CO	Nox	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.298	2.569	4.663	0.005	0.149	0.149
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.038	0.329	0.596	0.001	0.019	0.019
Grader	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	BAB Excavation	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	MSW Spreading	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting MSW	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Cover	0.128	1.101	1.998	0.002	0.064	0.064
	Diesel Equipment Exhaust Total	**0.916**	**8.167**	**14.349**	**0.015**	**0.474**	**0.474**

Table Notes:
1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment (lb/day)

Source	Use	ROG	CO	Nox	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	3.274	28.264	51.290	0.053	1.637	1.637
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.419	3.615	6.560	0.007	0.209	0.209
Grader	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	BAB Excavation	1.403	12.112	21.979	0.023	0.701	0.701
Dozer	MSW Spreading	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting MSW	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Cover	1.403	12.112	21.979	0.023	0.701	0.701
	Diesel Equipment Exhaust Total	**9.374**	**81.190**	**146.862**	**0.152**	**4.703**	**4.703**

Table Notes:
1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment (ton/yr)

Source	Use	ROG	CO	Nox	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.3	2.8	5.0	0.0	0.2	0.2
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.0	0.4	0.6	0.0	0.0	0.0
Grader	Haul Road Maintenance	0.0	0.1	0.1	0.0	0.0	0.0
Dozer	BAB Excavation	0.1	1.2	2.2	0.0	0.1	0.1
Dozer	MSW Spreading	0.1	1.2	2.2	0.0	0.1	0.1
Compactor	Compacting MSW	0.1	1.2	2.2	0.0	0.1	0.1
Compactor	Compacting Cover	0.1	1.2	2.2	0.0	0.1	0.1
	Diesel Equipment Exhaust Total	**0.921**	**7.976**	**14.4**	**0.015**	**0.5**	**0.5**

Table Notes:
1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area (lb/hr)

Area	ROG	CO	Nox	SO2	PM10	PM2.5
Main UP	0.030	0.369	0.469	0.000	0.022	0.022
Main UPS	0.003	0.041	0.052	0.000	0.002	0.002
Main UP Dock	0.012	0.148	0.188	0.000	0.009	0.009
BAB Haul	0.275	2.378	4.305	0.004	0.138	0.138
BAB UNS	0.072	0.707	1.122	0.001	0.041	0.041
BABOPS - Excavation	0.128	1.101	1.998	0.002	0.064	0.064
BABOPS - DC Loading	0.009	0.081	0.148	0.000	0.005	0.005
LFOPS - Spread MSW	0.128	1.101	1.998	0.002	0.064	0.064
LFOPS - Compact MSW	0.128	1.101	1.998	0.002	0.064	0.064
LFOPS - Daily Cover Unload/Spread	0.005	0.041	0.074	0.000	0.002	0.002
LFOPS - Compacting Daily Cover	0.128	1.101	1.998	0.002	0.064	0.064
Diesel Equipment Exhaust Total	0.916	8.167	14.349	0.015	0.474	0.474

Emissions by Area (lb/day)

Area	ROG	CO	Nox	SO2	PM10	PM2.5
Main UP	0.030	0.369	0.469	0.000	0.022	0.022
Main UPS	0.003	0.041	0.052	0.000	0.002	0.002
Main UP Dock	0.012	0.148	0.188	0.000	0.009	0.009
BAB Haul	3.014	26.021	47.214	0.049	1.507	1.507
BAB UNS	0.548	4.820	8.586	0.009	0.280	0.280
BABOPS - Excavation	1.403	12.112	21.979	0.023	0.701	0.701
BABOPS - DC Loading	0.104	0.896	1.626	0.002	0.052	0.052
LFOPS - Spread MSW	1.403	12.112	21.979	0.023	0.701	0.701
LFOPS - Compact MSW	1.403	12.112	21.979	0.023	0.701	0.701
LFOPS - Daily Cover Unload/Spread	0.052	0.448	0.813	0.001	0.026	0.026
LFOPS - Compacting Daily Cover	1.403	12.112	21.979	0.023	0.701	0.701
Diesel Equipment Exhaust Total	9.374	81.190	146.862	0.152	4.703	4.703

Emissions by Area (ton/yr)

Area	ROG	CO	Nox	SO2	PM10	PM2.5
Main UP	0.00	0.04	0.05	0.00	0.00	0.00
Main UPS	0.00	0.00	0.01	0.00	0.00	0.00
Main UP Dock	0.00	0.01	0.02	0.00	0.00	0.00
BAB Haul	0.30	2.56	4.64	0.00	0.15	0.15
BAB UNS	0.05	0.47	0.84	0.00	0.03	0.03
BABOPS - Excavation	0.14	1.19	2.16	0.00	0.07	0.07
BABOPS - DC Loading	0.01	0.09	0.16	0.00	0.01	0.01
LFOPS - Spread MSW	0.14	1.19	2.16	0.00	0.07	0.07
LFOPS - Compact MSW	0.14	1.19	2.16	0.00	0.07	0.07
LFOPS - Daily Cover Unload/Spread	0.01	0.04	0.08	0.00	0.00	0.00
LFOPS - Compacting Daily Cover	0.14	1.19	2.16	0.00	0.07	0.07
Diesel Equipment Exhaust Total	0.92	7.98	14.43	0.01	0.46	0.46

Division of Emissions

Area	Scraper VMT/yr [1]	Scraper % of Emissions	Grader VMT/yr [1]	Grader % of Emissions
Main UP	--	--	58.14	42.7%
Main UPS	--	--	6.44	4.7%
Main UP Dock	--	--	23.26	17.1%
BAB Haul	10,543	81.6%	1.7	1.3%
BAB UNS'	1,834	14.2%	46.5	34.2%
BAB Loading	363	2.8%	--	--
Daily Cover Unloading/Spread	193	1.4%		
Totals	**12,921.88**	**100.0%**	**136.1**	**100.0%**

Table Notes:
1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Main Unpaved DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.022	0.022
Daily Emissions	lb/day	0.022	0.022
Annual Emissions	lb/year	0.002	0.002

Main Unpaved Stabilized DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0024	0.0024
Daily Emissions	lb/day	0.0024	0.0024
Annual Emissions	lb/year	0.000	0.000

Main Unpaved Deck DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.0088	0.0088
Daily Emissions	lb/day	0.0088	0.0088
Annual Emissions	lb/year	0.001	0.001

BAB Haul DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.138	0.138
Daily Emissions	lb/day	1.507	1.507
Annual Emissions	lb/year	0.148	0.148

BAB UNS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.041	0.041
Daily Emissions	lb/day	0.280	0.280
Annual Emissions	lb/year	0.027	0.027

BABOPS - Excavation & Loading DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.07	0.07
Daily Emissions	lb/day	0.75	0.75
Annual Emissions	lb/year	0.07	0.07

LFOPS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.19	0.19
Daily Emissions	lb/day	2.13	2.13
Annual Emissions	lb/year	0.21	0.21

GCLF Emissions from the Paved Main Road for Future Interim Operational Year

Paved Road equation from AP-42 (1/1995) Section 13.2.1 with additional speed factor:

$EF=k(sL/2)^{0.65}(W/3)^{1.5}(S/SF)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.016	0.007
Particle Size Multiplier (k)		0.016	0.0073
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Loading (sL)	g/m^2	0.4	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Speed Factor (SF)	mph	32.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	2800
Trucks per day	trucks/day	675
Daily VMT	VMT/day	716
Annual VMT	VMT/yr	140680

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.01	0.46
Daily Emissions	lb/day	11.12	5.07
Annual Emissions	ton/yr	1.09	0.50

Notes:

1) Paved road emission factor is calculated with the paved road equation in AP-42 Section 13.2.1 (1/1995), with an additional speed factor, where trucks travel an average of 7.5 mph, without control efficiency. However, measures such as sweeping and other track out controls will be employed.

2) The $PM_{2.5}$ emission factor is based on AP-42 Section 13.2.2, (1/1995), where the particle size multiplier, k value, in Table 13.2.1.3 is 0.0073 lb/VMT (Note: This value is more conservative than the new AP-42 Section 13.2.1 (1/2006), with a k value of 0.0024 lb/VMT).

3) Silt loading (sL) value is based on 95% control and the AP-42 Table 13.2.1-3 mean silt loading value of 7.4 g/m^2 for municipal solid waste landfills. Control will be achieved through a combination of sweeping, track-out programs, and other measures as necessary.

4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for Future Interim Operational Year as placed on an aerial overlay of the landfill area.

5) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Future Interim Operational Year

Truck Traffic

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.082	0.022
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)		15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	8,500
Trucks per day	trucks/day	675
Daily VMT	VMT/day	2173
Annual VMT	VMT/yr	427009

E=EF x VMT

E=Emissions (lbs/day)
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	16.17	4.27
Daily Emissions	lb/day	177.86	46.94
Annual Emissions	ton/yr	17.47	4.61

Notes:
1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.
2) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and
3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Year

4) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.
5) Silt value was the district default of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.
6) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	8,500
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	6.44

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	2.77	0.31
Daily Emissions	lb/day	2.77	0.31
Annual Emissions	ton/yr	0.01	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Future Interim Operational Year.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unpaved Unstabilized Main Road for Future Interim Operational Year

Truck Traffic

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.273	0.072
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance unpaved road	feet	500
Trash trucks per day	trucks/day	675
Daily VMT	VMT/day	128
Annual VMT	VMT/yr	25118

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Unpaved Unstabilized Road			
Hourly Emissions	lb/hour	3.17	0.84
Daily Emissions	lb/day	34.88	9.20
Annual Emissions	ton/yr	3.43	0.90

Notes:

1) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	500
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.02
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	lb/year	100.08	11.11
Volumes in Model		#REF!	#REF!
Daily Emission Rate (ER)	g/s	3.7340E-03	4.1439E-04
Daily ER per model volume	g/s	#REF!	#REF!
Annual Emission Rate	g/s	3.6625E-03	4.0645E-04
Annual ER per model volume	g/s	#REF!	#REF!

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Future Interim Operational Year.

3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Unpaved Unstabilized Landfill Deck Road for Future Interim Operational Year

Truck Traffic

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.600	0.158
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	33	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	200
Trash trucks per day	trucks/day	675
Daily VMT	VMT/day	51
Annual VMT	VMT/yr	10047

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	2.79	0.74
Daily Emissions	lb/day	30.69	8.10
Annual Emissions	ton/yr	3.02	0.80

Notes:

1) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

2) One way road distance is considered 200 feet of deck prior to dumping refuse.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

3) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0

PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	200
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.08

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.07	0.01
Daily Emissions	lb/day	0.13	0.01
Annual Emissions	ton/yr	0.02	0.00

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance is considered 200 feet of deck prior to dumping refuse.

3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Borrow Area B Haul Road for Future Interim Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	2,300
Average load	BCY/scraper	20.3
Scrapers per day		91
Other scrapers per day		9
Max Daily Soil	CY/day	1,852
Daily VMT	VMT/day	87
Scrapers per year		11,002
Other scrapers per year		1,100
Soil	CY/year	223,333
Annual VMT	VMT/year	10,543

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.35	0.36
Daily Emissions	lb/day	14.84	3.92
Annual Emissions	ton/yr	0.90	0.24

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Year 25.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency for chemical stabilization. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	2,300
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	1.74

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.75	0.08
Daily Emissions	lb/day	0.75	0.08
Annual Emissions	ton/yr	0.00	0.00

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Future Interim Operational Year.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Borrow Area B Haul Road for Future Interim Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	1.251	0.330
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	33	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	BCY/scraper	20.3
Scrapers per day		91
Other scrapers per day		9
Max Daily Soil	CY/day	1,852
Daily VMT	VMT/day	15
Scrapers per year		11,002
Other scrapers per year		1,100
Soil	CY/year	223,333
Annual VMT	VMT/year	1,834

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.71	0.45
Daily Emissions	lb/day	18.76	4.95
Annual Emissions	ton/yr	1.15	0.30

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.00

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from Excavation at Stockpile B for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled	lbs/1000 BCY	16.49	2.47	0.15
Emission Factor, controlled	lbs/1000 BCY	11.92	1.79	
Hours of Operation	hours/day	11		
Operational Days per Year	days/year	307		
Daily Excavation volume	CY/day	1,852		
Annual Excavation volume	CY/year	223,333		

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	2.01	0.30
Daily Emissions	lb/day	22.08	3.31
Annual Emissions	ton/yr	1.33	0.20

Notes:

1) In year 17, 324,868 CY of soil is excavated from SPB for daily cover use.

2) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. The emission factor was adjusted to account for 33% silt. A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B. Additionally, an uncontrolled moisture content of 6.71% is used for the uncontrolled EF and a controlled moisture content of 8.46% is used from the controlled EF.

3) Excavation volumes are based on information from Volume IV - AEI Appendix F, October 2008.

4) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to excavation.

5) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Daily Cover Operations for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading Scraper at Stockpile B				
Emission Factor, uncontrolled	lbs/1000 BCY	112.62	16.89	0.15
Emission Factor, controlled	lbs/1000 BCY	13.79	2.07	
Unloading Scraper at the Working Face of the Landfill				
Emission Factor, uncontrolled	lbs/1000 BCY	27.82	4.17	
Emission Factor, controlled	lbs/1000 BCY	3.22	0.48	
Compacting Daily Cover at Working Face of the Landfill				
Emission Factor, controlled	lbs/1000 CCY	6.77	1.02	
Hours of Operation	hours	11		
Operational Days per Year	days/year	307		
Max Daily Cover Soil	CY/day	1852		
Annual Cover Soil	CY/year	223333		

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading Scraper at Stockpile B			
Hourly Emissions	lb/hour	2.32	0.35
Daily Emissions	lb/day	25.53	3.83
Annual Emissions	ton/yr	1.54	0.23
Unloading Scraper at the Working Face of the Landfill			
Hourly Emissions	lb/hour	0.54	0.08
Daily Emissions	lb/day	5.96	0.89
Annual Emissions	ton/yr	0.36	0.05
Compacting Daily Cover at Working Face of Landfill			
Hourly Emissions	lb/hour	1.14	0.17
Daily Emissions	lb/day	12.53	1.88
Annual Emissions	ton/yr	0.76	0.11

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. The emission factor was adjusted to account for 33% silt. A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B. Additionally, an uncontrolled moisture content of 6.71% is used for the uncontrolled EF and a controlled moisture content of 8.46% is used from the controlled EF.

2) Soil parameters are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Municipal Solid Waste Operations for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
MSW Spreading				
Emission Factor, uncontrolled	lbs/1000 LCY	0.36	0.18	0.50
Emission Factor, controlled	lbs/1000 LCY	0.36	0.18	
Emission Factor, uncontrolled	lbs/1000 tons	1.37	0.69	
Emission Factor, controlled	lbs/1000 tons	1.37	0.69	
Average Dozing Distance	feet	100	100	
Maximum Capacity	LCY/hr	1946.1	1946.1	
Wet Density, lb/LCY	lb/LCY	525	525	
Operator		0.75	0.75	
Material Source		1	1	
Material Properties		1.0	1.0	
Grade		1	1	
Expansion Factor	BCY/LCY	1.00	1.00	
Material Compaction Factor	CCY/BCY	0.39	0.39	
Adjusted Capacity	LCY/hr	1459.5	1459.5	
Silt, %	%	12.7	12.7	
Moisture Content (Uncontrolled)		19.6	19.6	
Moisture Content (Controlled)		19.6	19.6	
MSW Compactor Travel				
Emission Factor, uncontrolled	lb/1,000 CCY	0.19	0.10	0.50
Emission Factor, controlled	lb/1,000 CCY	0.19	0.10	
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143	
Emission Factor, controlled	lb/1,000 tons	0.286	0.143	
MSW Compaction				
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143	
Emission Factor, controlled	lb/1,000 tons	0.286	0.143	
Compactor Wt.	lb	113,350	113,350	
Lift Thickness (Compacted)	in	12	12	
Normal Operation Speed	mph	8	8	
Max. Allowed Speed	mph	7.5	7.5	
Speed	mph	7.5	7.5	
Compactor Width per Pass	ft	9.3	9.3	
No. Passes		5	5	
Grade		1	1	
Wet Density	lb/BCY	525	525	
Wet Density	lb/LCY	525	525	
Wet Density	lb/CCY	1350	1350	
Material Volume Change	BCY/LCY	1	1	
Material Compaction Factor	CCY/BCY	0.39	0.39	
Max Capacity	CCY/hr	2728	2728	
Adjusted Capacity	CCY/hr	2728	2728	
Silt	%	12.7	12.7	
Moisture Content, Uncontrolled	%	19.6	19.6	
Moisture Content, Controlled	%	19.6	19.6	
Hours of Operation	hours	11	11	

E=EF x MSWM x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 tons)

MSWM = MSW Mass (tons/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	
Spreading and Compacting MSW				
Hourly Emissions	lb/hour	0.88	0.44	
Daily Emissions	lb/day	9.73	4.88	
Annual Emissions	ton/yr	0.96	0.48	3200/5000

Notes:

1) Emission factors based on Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) Load factors are from Caterpillar Performance Handbook, 33d edition, 2002, pg 26-4, liner--natural bed clay, rock--broken granite, soil--25% rock 75% soil

3) Compaction factors are from Army Field Manual FM 5-434, 1994, Table 1-1

4) Speed and number of passes from Army Field Manual FM 5-434, 1994, Table 11-3

5) MSW silt content and moisture content from EPA-450/3-89-019, May, 1989, Table 5-2, pg 5-9.

6) MSW uncompacted (in-truck) density (lb/LCY) based on recommended default density for residential rear loaders in "Determining Remaining Permitted Capacity of California Landfills," CIWMB, April, 1995, Appendix A-3, Table A3-1.

7) MSW compacted density (lb/CCY) based on proposed in-place density in the application and EIR, 1350 lb/cy^3.

8) MSW compaction ratio based on compacting waste waste from in-truck density to in-place density.

9) MSW compacted lift thickness estimated from thickness range necessary to achieve the compacted density, Caterpillar Performance Handbook, 33d edition, 2002, pg 25-10.

10) MSW number of passes based on using Caterpillar 836G and method in "Determining Remaining Permitted Capacity of California Landfills," CIWMB, April, 1995, Appendix B.

11) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

12) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Landfill Gas Flares for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Emission Factor	lb/MM ft^3	10	10	30	1.5	7.34	2.66
Max. Hourly Flared LFG	MM ft^3/hr	0.2657	0.2657	0.2657	0.2657	0.2657	0.2657
Max. Daily Flared LFG	MM ft^3/day	6.377	6.377	6.377	6.377	6.377	6.377
Max. Yearly Flared LFG	MM ft^3/yr	2,327.6	2,327.6	2,327.6	2,327.6	2,327.6	2,327.6
Methane Fraction of LFG	%	50%	50%	50%	50%	--	--
Hours of Operation	hours/day	24	24	24	24	24	24
Number of Flares		4	4	4	4	4	4

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Hourly Emissions	lb/hour	1.33	1.33	3.99	0.20	1.95	0.71
Daily Emissions	lb/day	31.89	31.89	95.66	4.78	46.81	16.96
Annual Emissions	ton/yr	5.8	5.8	17	1	9	3

$E = EF \times F_{LFG}$

E= Emissions (lbs/day)

EF = Emission Factor (lb/MM ft^3)

F_{LFG} = Flared LFG (MM ft^3/day)

Notes:

1) Emission factor for $PM_{10}/PM_{2.5}$ of 10 lb/MMft^3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where TSP = 0.020 lb/MMBtu and PM_{10} = TSP.

2) Emission factor for NOx of 30 lb/MMft3 based on BACT for Enclosed Flares - SDAPCD ATC for adding one landfill gas flare system at Sycamore Landfill (Application No. 980163).

3) Emission factor for CO of 1.5 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where CO = 0.003 lb/MMBtu.

4) Emission factor for SOx of 7.34 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 raw gas sulfur content and a 98% conversion rate.

5) Emission factor for VOC/ROG of 2.66 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 Section 2.4, (9/1997), Table 2.4-1, and assumes 595 ppmv as hexane and a 98% DRE.

6) Max Flared LFG based on LandGEM modeling using the District's parameter's k = 0.02 yr-1 and Lo =**110**. The values are derived from an annual value of 6.938E7 m3/yr of uncontrolled LFG in year 25.

7) Number of flares is based on a total fuel throughput rating of 1500 scfm per flare. Four (4) flares are needed in year 17.

8) To be conservative, it is assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

GCLF Emissions from BAB Blasting for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lb/blast	1.03	0.06
Scaling Factor (k)	PM_x / TSP	0.52	0.03
Operational Hours	hour/day	6	6
Blasts per Day	blast/day	1	1
Blasts per Hour	blast/hr	1	1
Blasts per Year	blasts/year	22	22
Horizontal Blast Area (A)	ft^2/blast	2,723	2,723
Total Rock Blasted in Year 17	CY/yr	66,550	66,550

Parameter	Units	NOx Value	CO Value	SOx Value
Emission Factor (EF)	lb/ton ANFO	17	67	2

$PM\ EF=0.000014 \times A^{1.5} \times k$

EF=Emission Factor (lb/blast)
A = Horizontal Blast Area (ft2)
k=Scaling factor (PMx / TSP)

Blast Data	Blast Depth (ft)	Horiz. Blast Area (acres/blast)	Horiz. Blast Area (ft^2/blast)
Blast Type (1/16 acre)	30	0.0625	2,723

Blast Volume (CF/Blast)	Blast Volume (CY/Blast)	Number of Blasts per Year	Blast Rock Volume (CY/yr)	ANFO per Blast (tons)	Total ANFO per Year (tons)
81,675	3,025	22	66,550	1	22

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.03	0.06
Daily Emissions	lb/day	1.03	0.06
Annual Emissions	ton/yr	0.01	0.00

Calculated Emissions	Units	NOx Value	CO Value	SOx Value
Hourly Emissions	lb/hour	17.00	67.00	2.00
Daily Emissions	lb/day	17.00	67.00	2.00
Annual Emissions	ton/yr	0.19	0.7	0

E=EF x B

E= Emissions (lbs/day)
EF = Emission Factor (lb/blast)
B = Blasts per day

Notes:
1) Emission Factor equation from AP-42 (10/1998), Section 11.9.2.
2) Emission Factors for NOx, CO, and SOx are from AP-42 Section 13.3 - Explosives Detonation, dated 1/95, Table 13.3-1.
3) Maximum blast area assumed to be 1/16th of an acre, used for daily and hourly emissions. Annual blast rate assumes the total number of blasts per year and the size of the blast.
4) Scaling factors for PM_{10} and $PM_{2.5}$ from AP-42 (10/1998), Table 11.9.-1.
5) Hourly and daily emissions are the same as no more than one blast will occur on any given day.
6) Amount of rock to be blasted (less than 20% of total material) referenced from GeoLogic Associates 1998 report, "Geophysical Study of Potential Borrow Areas".
7) Blasting volume is based on the blast depth and the horizontal blast areas, as defined in the GCLF AEI, Appendix F, dated October 2008.

GCLF Emissions from Drilling for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor	lbs/ton	0.00008	1.481E-05	0.185
Operational Hours	hour/day	6		
Annual Total Rock	CY/yr	66,550		
Daily Total Rock	CY/day	0		
Hourly Total Rock	CY/hr	0		
Rock Density	ton/CY	1.5		

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	ton/yr	0.00	0.00

E=EF x R x rd

E= Emissions (lbs/day)
EF = Emission Factor (lb/ton)
R = Daily Rock (CY/day)
rd = Rock Density (ton/CY)

Notes:
1) Emission Factor referenced from AP-42 (1/1995) Table 11.19.2-2. wet drilling.

2) There is no $PM_{2.5}$ emission factor for wet drilling in AP-42 Section 11.19.2. Therefore, an equivalent $PM_{2.5}$ to PM_{10} ratio will be derived from a similar mechanical process. Table 11.19.2-2 in AP-42 (8/2004) lists a PM_{10} emission factor of 0.00054 lb/ton and a $PM_{2.5}$ emission factor of 0.00010 lb/ton for teritary rock crushing, resulting in a ratio of 0.185. This ratio will be applied for drilling.
3) Maximum area assumed to be 1/16th of an acre..
4) No daily emissions from drilling are inlcuded in this AQIA, since the worst case day will include a blast and no drilling will occur during a day that blasting occurs.

GCLF Emissions from Rock Crushing for Future Interim Operational Year

ROCK CRUSHING PLANT EMISSIONS CALCULATIONS EMISSIONS

SOURCE DESCRIPTION	SOURCE TYPE	PROCESS RATE (tons/hr)	PM_{10} EMISSION FACTOR* (lbs/ton)	$PM_{2.5}$ EMISSION FACTOR** (lbs/ton)	EMISSION FACTOR TYPE	- CONTROL EFFICIENCY	CALCULATED PM10 EMISSIONS (lbs/hr)	CALCULATED PM2.5 EMISSIONS (lbs/hr)	CALCULATED PM10 EMISSIONS (lbs/year)	CALCULATED PM2.5 EMISSIONS (lbs/year)
Front Loader to vibrating feeder	transfer point 1	400	1.40E-03	3.79E-04	dry transfer point		0.5600	0.1517	139.76	37.85
Grizzly feeder to conveyor C-1	transfer point 2	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	4.79	1.30
Conveyor C-1 to stacker RS1	transfer point 3	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	4.79	1.30
Stacker RS1 to stockpile SP1	transfer point a	100	4.80E-05	1.30E-05	wet transfer point		0.0048	0.0013	4.79	1.30
Grizzly feeder to jaw crusher	transfer point b	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	4.79	1.30
Jaw crusher	primary crushing	300	7.00E-04	1.00E-04	primary crushing with baghouse	97.5%	0.0053	0.0008	1.75	0.25
Jaw crusher to conveyor C-2	transfer point c	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	4.79	1.30
Conveyor C-2 to triple deck screen	transfer point d	300	4.80E-05	1.30E-05	wet transfer point		0.0144	0.0039	4.79	1.30
Triple deck screen	process screen	300	8.40E-04	5.00E-05	process screen with baghouse	97.5%	0.0063	0.0004	2.10	0.12
Triple deck screen to conveyor C-5	transfer point 4	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	4.79	1.30
Triple deck to conveyor C-3	transfer point e	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	4.79	1.30
Conveyor C-5 to radial stacker RS2	transfer point 5	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	4.79	1.30
Radial stacker RS2 to stockpile SP2	transfer point f	171	4.80E-05	1.30E-05	wet transfer point		0.0082	0.0022	4.79	1.30
Conveyor C-3 to cone crusher	transfer point g	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	4.79	1.30
Cone crusher CR2	process crushing	195	5.90E-04	1.00E-04	process crushing with baghouse	97.5%	0.0029	0.0005	1.47	0.25
Cone crusher to conveyor C-4	transfer point h	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	4.79	1.30
Conveyor C-4 to triple deck screen	transfer point i	195	4.80E-05	1.30E-05	wet transfer point		0.0094	0.0025	4.79	1.30
Triple deck screen to conveyor C-6	transfer point 6	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	4.79	1.30
Conveyor C-6 to stacker RS-3	transfer point 7	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	4.79	1.30
Stacker RS3 to stockpile	transfer point i	129	4.80E-05	1.30E-05	wet transfer point		0.0062	0.0017	4.79	1.30
						Total:	**0.71**	**0.19**	**221.74**	**59.24**

* Emission Factors for PM10 are from Mineral Industry Emission Calculations Policy Memo, dated April 9, 1996 (SDAPCD Emission Calculation Procedures Guidance Documents)

** Emission Factors for PM2.5 are not provided in the Mineral Industry Emission Calculations Policy Memo, dated April 9, 1996. Therefore, AP-42 Section 11.19.2 will be used for PM2.5 emission factors, dated Aug 2004.

where the following emission factors apply for crushers:

	PM10	PM2.5
Primary crushing (+4 in materials)	7.00E-04 lbs/ton	1.00E-04 lbs/ton
Process crushing (-4 in materials) dry	2.40E-03 lbs/ton	lbs/ton
Process crushing (-4 in materials) wet	5.90E-04 lbs/ton	1.00E-04 lbs/ton
Fine crushing (<0.5 in materials) dry	1.50E-02 lbs/ton	lbs/ton
Fine crushing (<0.5 in materials) wet	2.00E-03 lbs/ton	7.00E-05 lbs/ton

with the following control efficiencies to be used with dry emission factors:

Water spray	50% control efficiency	50% control efficiency
Water spray with surfactant	75% control efficiency	75% control efficiency
Venting to fabric filter	95% control efficiency	95% control efficiency
Venting to insertable fabric filter	97.5% control efficicency	97.5% control efficicency

Volume to be crushed	66,550 CY/year
Density of Rock	1.5 ton/CY
Mass to be crushed	99,825 ton/year

and the following emission factors apply for screening:

Dry process screen	1.50E-02 lbs/ton	lbs/ton
Wet process screen	8.40E-04 lbs/ton	5.00E-05 lbs/ton
Dry fine screen	7.10E-02 lbs/ton	lbs/ton
Wet fine screen	2.10E-03 lbs/ton	lbs/ton

with the following control efficiencies to be used with dry emission factors:

Covered screen	50% control efficiency	50% control efficiency
Covered with central fabric filter	95% control efficiency	95% control efficiency
Covered with insertable fabric filter	97.5% control efficiency	97.5% control efficiency
Covered screen with water added	75% control efficiency	75% control efficiency
Covered screen with surfactant added	95% control efficiency	95% control efficiency

and the following emission factors apply for transfer points:

wet transfer point	4.80E-05 lbs/ton	1.30E-05 lbs/ton
dry transfer point	1.40E-03 lbs/ton	3.79E-04 lbs/ton

with the following control efficiencies to be used with dry emission factors:

enclosed transfer point	50% control efficiency	50% control efficiency
insertable fabric filter	97.5% control efficiency	97.5% control efficiency
central fabric filter	95% control efficiency	95% control efficiency
fogged, enclosed transfer point	75% control efficiency	75% control efficiency

Compliance with Rule 52

Rule 52 standard: 0.1 grain per dry standard cubic foot of exhaust gas

Equipment exhaust flow rate: 1,000 cfm (applicant's data)

Grain loading = (PM emission through filter oulet/hour)) x (1/exhaust flow rate in cfm)(1 hour/ 60 min) x (7000 grains/lb PM)

= 0.00061 grain/dscft

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.71	0.19
Daily Emissions	lb/day	7.84	2.10
Annual Emissions	ton/yr	0.11	0.03

GCLF Criteria Emissions from Fugitive Landfill Gas for Future Interim Operational Year

Future Interim Operational Year LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.266
Max. Daily Flared LFG	MM ft^3/day	6.377
Max. Yearly Flared LFG	MM ft^3/yr	2327.627
Hours of Operation	hours/day	24
Number of Flares		4
Max. Hourly Fugitive LFG	MM ft^3/hr	0.014
Max. Daily Fugitive LFG	MM ft^3/day	0.336
Max. Yearly Fugitive LFG	MM ft^3/yr	122.507

Future Interim Operational Year Criteria Pollutant Emissions From Fugitive Landfill Gas

Yr	Fugitive LFG (MM ft^3/hr)	Fugitive LFG (MM ft^3/yr)	Hourly Criteria Pollutant Emissions (lbs/hr)		Annual Criteria Pollutant Emissions (ton/yr)	
			CO	VOC	CO	VOC
			141	**595**	**141**	**595**
			28.01	**86.17**	**28.01**	**86.17**
17	0.014	122.507	0.14	1.86	0.63	8.15

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998.

GCLF Emissions from Wind Erosion for Future Interim Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.5376	30.3806	
Emission Factor, Undisturbed	lb/acre-hour	0.5649	0.0847	
Emission Factor, Undisturbed	lb/acre-year	141.7764	21.2665	
Hours of Operation	hours/day	24		
Operational Days per Year	days/year	365		
Frequency of Wind over threshold	hours/year	0.029		
Borrow Area B Disturbed Area	acres	5		
Borrow Area B Undisturbed, Unvegetated Areas	acres	5		
Landfill Disturbed Area	acres	2		
Landfill Undisturbed, Unvegetated Areas	acres	10		

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Borrow Area B Disturbed Area			
Hourly Emissions	lb/hour	3.63	0.54
Daily Emissions	lb/day	87.16	13.07
Annual Emissions	ton/yr	0.46	0.07
Borrow Area B Undisturbed, Unvegetated Area			
Hourly Emissions	lb/hour	2.54	0.38
Daily Emissions	lb/day	61.01	9.15
Annual Emissions	ton/yr	0.32	0.05
Landfill Disturbed Area			
Hourly Emissions	lb/hour	1.61	0.24
Daily Emissions	lb/day	38.74	5.81
Annual Emissions	ton/yr	0.20	0.03
Landfill Undisturbed, Unvegetated Area			
Hourly Emissions	lb/hour	5.65	0.85
Daily Emissions	lb/day	135.59	20.34
Annual Emissions	ton/yr	0.71	0.11

E=EF x A

E= Emissions (lbs/day)

EF = Emission Factor (lb/acre-day)

A = Exposed Area (acres)

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) 4.5 acres undisturbed, unvegetated area in Borrow Area B is from prior year activity, 4.5 acres disturbed area in Borrow Area B is from current year activity. Borrow Area B is used over a period of approximately 15 years, for an approximate acreage of 4.5 acres per year. 2 acres disturbed area in the landfill is the active area of the landfill. The landfill is used over 30 years for an approximate acreage of 6 acres per year. 10 acres undisturbed, unvegetated area is 6 acres from the prior year plus 4 acres of the current year that is not actively being used.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, $k(PM_{2.5}) = 0.2$ and $k(PM_{10}) = 0.5$. In the 11/2006 version, $k(PM_{2.5}) = 0.075$ and $k(PM_{10}) = 0.5$.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

Hourly Emissions for Final Operational Year
Pounds per Hour (lb/hr)

	Paved Main Road	Unpaved Stabilized Main Road [1]	Unpaved Unstabilized Main Road [1]	Unpaved Landfill Deck Road [1]	Borrow Area A Haul Road [1]	Borrow Area B Haul Road [1]	Excavation at BAA	Excavation at BAB	Daily Cover Loading at BAA	Daily Cover Loading at BAB	Daily Cover Spreading at Landfill AF	Daily Cover Compacting at Landfill AF	MSW Spreading and Compacting	Wind Erosion BAA Disturbed & Undisturbed	Wind Erosion BAB Disturbed & Undisturbed	Wind Erosion Landfill Area Disturbed & Undisturbed	Flares	Landfill Gas Fugitive	Total (lbs/hr)
Fugitive PM_{10}	1.01	1.56	3.33	2.86	8.07	1.21	1.34	0.00	2.32	0.00	0.54	1.14	0.88	5.81	8.23	7.26	1.53		47.10
Exhaust PM_{10}		0.00	0.02	0.01	0.25	0.01	0.06	0.00	0.00	0.00	0.00	0.06	0.13						0.54
Total PM_{10}	1.01	1.56	3.35	2.86	8.31	1.22	1.40	0.00	2.32	0.00	0.54	1.20	1.01	5.81	8.23	7.26	1.53		47.64
Fugitive $PM_{2.5}$	0.46	0.38	0.85	0.74	1.44	0.13	0.20	0.00	0.35	0.00	0.08	0.17	0.44	0.87	1.23	1.09	1.53		9.98
Exhaust $PM_{2.5}$		0.00	0.02	0.01	0.25	0.01	0.06	0.00	0.00	0.00	0.00	0.06	0.13						0.54
Total $PM_{2.5}$	0.46	0.38	0.87	0.75	1.69	0.15	0.26	0.00	0.35	0.00	0.08	0.23	0.57	0.87	1.23	1.09	1.53		10.53
VOC		0.00	0.02	0.01	0.49	0.02	0.13	0.00	0.01	0.00	0.00	0.13	0.26				0.82	2.15	4.02
CO		0.00	0.28	0.11	4.27	0.23	1.10	0.00	0.06	0.00	0.03	1.10	2.20				0.23	0.17	9.78
NOx		0.00	0.35	0.14	7.61	0.30	2.00	0.00	0.11	0.00	0.05	2.00	4.00				4.60		21.16
SOx		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				2.25		2.27
TACs																			
Arsenic	2.02E-05	3.12E-05	6.67E-05	5.71E-05	1.30E-04	2.41E-05	2.68E-05	0.00E+00	4.64E-05	0.00E+00	1.08E-05	2.28E-05	1.77E-05	1.16E-04	1.65E-04	1.45E-04			8.798E-04
Beryllium	1.01E-06	1.56E-06	3.33E-06	2.86E-06	6.49E-06	1.21E-06	1.34E-06	0.00E+00	2.32E-06	0.00E+00	5.42E-07	1.14E-06	8.85E-07	5.81E-06	8.23E-06	7.26E-06			4.399E-05
Cadmium	1.01E-06	1.56E-06	3.33E-06	2.86E-06	6.49E-06	1.21E-06	1.34E-06	0.00E+00	2.32E-06	0.00E+00	5.42E-07	1.14E-06	8.85E-07	5.81E-06	8.23E-06	7.26E-06			4.399E-05
Chromium (total)	5.05E-05	7.80E-05	1.67E-04	1.43E-04	3.25E-04	6.03E-05	6.69E-05	0.00E+00	1.16E-04	0.00E+00	2.71E-05	5.70E-05	4.42E-05	2.91E-04	4.12E-04	3.63E-04			2.199E-03
Copper	1.01E-04	1.56E-04	3.33E-04	2.86E-04	6.49E-04	1.21E-04	1.34E-04	0.00E+00	2.32E-04	0.00E+00	5.42E-05	1.14E-04	8.85E-05	5.81E-04	8.23E-04	7.26E-04			4.399E-03
Lead	5.05E-05	7.80E-05	1.67E-04	1.43E-04	3.25E-04	6.03E-05	6.69E-05	0.00E+00	1.16E-04	0.00E+00	2.71E-05	5.70E-05	4.42E-05	2.91E-04	4.12E-04	3.63E-04			2.199E-03
Manganese	5.05E-04	7.80E-04	1.67E-03	1.43E-03	3.25E-03	6.03E-04	6.69E-04	0.00E+00	1.16E-03	0.00E+00	2.71E-04	5.70E-04	4.42E-04	2.91E-03	4.12E-03	3.63E-03			2.199E-02
Mercury	5.05E-06	7.80E-06	1.67E-05	1.43E-05	3.25E-05	6.03E-06	6.69E-06	0.00E+00	1.16E-05	0.00E+00	2.71E-06	5.70E-06	4.42E-06	2.91E-05	4.12E-05	3.63E-05	8.16E-07	4.29E-06	2.250E-04
Nickel	2.02E-05	3.12E-05	6.67E-05	5.71E-05	1.30E-04	2.41E-05	2.68E-05	0.00E+00	4.64E-05	0.00E+00	1.08E-05	2.28E-05	1.77E-05	1.16E-04	1.65E-04	1.45E-04			8.798E-04
Selenium	5.05E-06	7.80E-06	1.67E-05	1.43E-05	3.25E-05	6.03E-06	6.69E-06	0.00E+00	1.16E-05	0.00E+00	2.71E-06	5.70E-06	4.42E-06	2.91E-05	4.12E-05	3.63E-05			2.199E-04
Silica (crystalline)	1.01E-01	1.56E-01	3.33E-01	2.86E-01	6.49E-01	1.21E-01	1.34E-01	0.00E+00	2.32E-01	0.00E+00	5.42E-02	1.14E-01	8.85E-02	5.81E-01	8.23E-01	7.26E-01			4.399E+00
Zinc	2.02E-04	3.12E-04	6.67E-04	5.71E-04	1.30E-03	2.41E-04	2.68E-04	0.00E+00	4.64E-04	0.00E+00	1.08E-04	2.28E-04	1.77E-04	1.16E-03	1.65E-03	1.45E-03			8.798E-03
Acetone		0.00E+00		5.24E+00	0.00E+00												3.24E-03	1.71E-02	5.259E+00
Acrylonitrile																	2.32E-04	1.22E-03	1.456E-03
Benzene																	1.19E-03	6.25E-03	7.442E-03
Carbon disulfide																	3.52E-04	1.85E-03	2.203E-03
Carbonyl sulfide																	2.34E-04	1.23E-03	1.468E-03
Carbon Tetrachloride																	4.90E-06	2.58E-05	3.069E-05
Chlorobenzene																	2.24E-04	1.18E-03	1.404E-03
Chlorodifluoromethane																	8.95E-04	4.71E-03	5.608E-03
Chloroethane (ethyl chloride)																	6.42E-04	3.38E-03	4.023E-03
Chloroform																	2.85E-05	1.50E-04	1.787E-04
1,4-Dichlorobenzene																	2.46E-04	1.29E-03	1.540E-03
Diesel Exhaust PM		1.503E-04	1.648E-02	6.591E-03	2.474E-01	1.389E-02	6.377E-02	0.000E+00	3.376E-03	0.000E+00	1.688E-03	6.377E-02	1.275E-01						5.447E-01
Ethyl benzene																	3.90E-03	2.05E-02	2.441E-02
Ethylene dichloride (1,2-Dichloroethane)																	3.23E-04	1.70E-03	2.024E-03
Ethylidene dichloride (1,1-Dichloroethane)																	1.85E-03	9.75E-03	1.160E-02
Fluorotrichloromethane (Chlorofluorocarbons)																	8.95E-04	4.71E-03	5.608E-03
Formaldehyde																	4.14E-02		4.141E-02
Hexane																	4.51E-03	2.37E-02	2.825E-02
Hydrogen chloride																	2.28E+00		2.279E+00
Hydrogen sulfide																	9.64E-03	5.07E-02	6.035E-02
Isopropyl alcohol (2-propanol)																	2.40E-02	1.26E-01	1.502E-01
Methyl chloroform																	5.10E-04	2.68E-03	3.194E-03
Methylene chloride																	9.67E-03	5.09E-02	6.059E-02
Methyl ethyl ketone																	4.07E-03	2.14E-02	2.550E-02
Perchloro-ethylene																	4.93E-03	2.59E-02	3.086E-02
Propylene dichloride (1,2-dichloropropane)																	1.62E-04	8.53E-04	1.015E-03
1,1,2,2-tetrachloroethane																	1.48E-03	7.81E-03	9.294E-03
Toluene																	2.88E-02	1.52E-01	1.806E-01
Trichloroethylene																	2.95E-03	1.55E-02	1.845E-02
Vinyl acetate		0.00E+00		1.095E+01	0.00E+00														1.095E+01
Vinyl chloride																	3.65E-03	1.92E-02	2.288E-02
Vinylidene chloride (1,1-dichloroethene)																	1.54E-04	8.13E-04	9.672E-04
Xylenes																	1.02E-02	5.38E-02	6.408E-02
PAHs w/o Napthalene																	3.80E-04		3.804E-04
Napthalene																	5.40E-05		5.399E-05
Dioxins & Furans																	3.65E-21		3.651E-21
Total TAC	1.02E-01	1.58E-01	3.53E-01	1.65E+01	9.03E-01	1.36E-01	1.99E-01	0.00E+00	2.38E-01	0.00E+00	5.64E-02	1.79E-01	2.17E-01	5.87E-01	8.31E-01	7.33E-01	2.44E+00	6.27E-01	2.42E+01

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Daily Emissions for Final Operational Year
Pounds per Day (lb/day)

Operational Year 30	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Unstabilized Main Road (1)	Unpaved Landfill Deck Road (1)	Borrow Area A Haul Road (1)	Borrow Area B Haul Road (1)	Excavation at BAA	Excavation at BAB	Daily Cover Loading at BAA	Daily Cover Loading at BAB	Daily Cover Spreading at Landfill AF	Daily Cover Compacting at Landfill AF	MSW Spreading and Compacting	Wind Erosion BAA Disturbed & Undisturbed	Wind Erosion BAB Disturbed & Undisturbed	Wind Erosion Landfill Area Disturbed & Undisturbed	Flares	Landfill Gas Fugitive	Total (lbs/day)
Fugitive PM_{10}	11.12	14.65	35.20	70.72	53.59	1.34	14.72	0.00	25.53	0.00	5.96	12.53	9.73	139.46	197.57	174.32	36.81		803.27
Exhaust PM_{10}		0.00	0.02	0.01	2.58	0.01	0.70	0.00	0.04	0.00	0.02	0.70	1.40						5.48
Total PM_{10}	11.12	14.65	35.22	70.73	56.17	1.35	15.42	0.00	25.57	0.00	5.98	13.24	11.14	139.46	197.57	174.32	36.81		808.75
Fugitive $PM_{2.5}$	5.07	3.89	9.24	8.11	13.85	0.15	2.21	0.00	3.83	0.00	0.89	1.88	4.88	20.92	29.64	26.15	36.81		167.52
Exhaust $PM_{2.5}$		0.00	0.02	0.01	2.58	0.01	0.70	0.00	0.04	0.00	0.02	0.70	1.40						5.48
Total $PM_{2.5}$	5.07	3.89	9.26	8.12	16.43	0.16	2.91	0.00	3.87	0.00	0.91	2.58	6.28	20.92	29.64	26.15	36.81		173.00
VOC		0.00	0.02	0.01	5.15	0.02	1.40	0.00	0.07	0.00	0.04	1.40	2.81				3.57	51.58	66.08
CO		0.00	0.28	0.11	44.52	0.23	12.11	0.00	0.64	0.00	0.32	12.11	24.22				1.01	3.97	99.54
NOx		0.00	0.35	0.14	80.66	0.30	21.98	0.00	1.16	0.00	0.58	21.98	43.96				20.15		191.27
SOx		0.00	0.00	0.00	0.08	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.05				9.86		10.04
TACs																			
Diesel Exhaust PM		1.503E-04	1.648E-02	6.591E-03	2.579E+00	1.389E-02	7.014E-01	0.000E+00	3.714E-02	0.000E+00	1.857E-02	7.014E-01	1.403E+00						5.477E+00

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Annual Emissions for Final Operational Year
Criteria Pollutants in Tons per Year (tons/yr); TACs in Pounds per Year (lb/yr)

Operational Year 30	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Unstabilized Main Road (1)	Unpaved Landfill Deck Road (1)	Borrow Area A Haul Road (1)	Borrow Area B Haul Road (1)	Excavation at BAA	Excavation at BAB	Daily Cover Loading at BAA	Daily Cover Loading at BAB	Daily Cover Spreading at Landfill AF	Daily Cover Compacting at Landfill AF	MSW Spreading and Compacting	Wind Erosion BAA Disturbed & Undisturbed	Wind Erosion BAB Disturbed & Undisturbed	Wind Erosion Landfill Area Disturbed & Undisturbed	Flares	Landfill Gas Fugitive	tons/yr
Fugitive PM_{10}	1.09	1.44	3.48	3.04	3.18	0.04	0.89	0.00	1.54	0.00	0.36	0.76	0.96	0.73	1.03	0.91	6.72		26.16
Exhaust PM_{10}		0.00	0.00	0.00	0.25	0.00	0.03	0.03	0.00	0.00	0.00	0.07	0.14						0.54
Total PM_{10}	1.09	1.44	3.48	3.04	3.44	0.04	0.92	0.03	1.54	0.00	0.36	0.82	1.09	0.73	1.03	0.91	6.72		26.70
Fugitive $PM_{2.5}$	0.50	0.38	0.91	0.80	0.83	0.00	0.13	0.00	0.23	0.00	0.05	0.11	0.48	0.11	0.15	0.14	6.72		11.55
Exhaust $PM_{2.5}$		0.00	0.00	0.00	0.25	0.00	0.03	0.03	0.00	0.00	0.00	0.07	0.14						0.54
Total $PM_{2.5}$	0.50	0.38	0.91	0.80	1.09	0.01	0.17	0.03	0.23	0.00	0.06	0.18	0.62	0.11	0.15	0.14	6.72		12.09
VOC		0.00	0.00	0.00	0.51	0.00	0.07	0.07	0.00	0.01	0.00	0.14	0.28				3.57	9.41	14.06
CO		0.00	0.03	0.01	4.37	0.02	0.59	0.59	0.00	0.06	0.03	1.19	2.38				1.01	0.73	11.02
NOx		0.00	0.03	0.01	7.93	0.03	1.08	1.08	0.00	0.11	0.06	2.16	4.32				20.15		36.96
SOx		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				9.86		9.88
TACs (lb/yr)																			
Arsenic	2.18E-05	2.88E-05	6.95E-05	8.61E-04	6.37E-05	1.69E-03	1.78E-05	0.00E+00	3.08E-05	0.00E+00	7.19E-06	1.51E-05	1.91E-05	1.46E-05	2.07E-05	1.82E-05			2.876E-03
Beryllium	1.09E-06	1.44E-06	3.48E-06	4.30E-05	3.18E-06	8.44E-05	8.88E-07	0.00E+00	1.54E-06	0.00E+00	3.60E-07	7.56E-07	9.56E-07	7.29E-07	1.03E-06	9.11E-07			1.438E-04
Cadmium	1.09E-06	1.44E-06	3.48E-06	4.30E-05	3.18E-06	8.44E-05	8.88E-07	0.00E+00	1.54E-06	0.00E+00	3.60E-07	7.56E-07	9.56E-07	7.29E-07	1.03E-06	9.11E-07			1.438E-04
Chromium (total)	5.46E-05	7.20E-05	1.74E-04	2.15E-03	1.59E-04	4.22E-03	4.44E-05	0.00E+00	7.70E-05	0.00E+00	1.80E-05	3.78E-05	4.78E-05	3.65E-05	5.16E-05	4.56E-05			7.189E-03
Copper	1.09E-04	1.44E-04	3.48E-04	4.30E-03	3.18E-04	8.44E-03	8.88E-05	0.00E+00	1.54E-04	0.00E+00	3.60E-05	7.56E-05	9.56E-05	7.29E-05	1.03E-04	9.11E-05			1.438E-02
Lead	5.46E-05	7.20E-05	1.74E-04	2.15E-03	1.59E-04	4.22E-03	4.44E-05	0.00E+00	7.70E-05	0.00E+00	1.80E-05	3.78E-05	4.78E-05	3.65E-05	5.16E-05	4.56E-05			7.189E-03
Manganese	5.46E-04	7.20E-04	1.74E-03	2.15E-02	1.59E-03	4.22E-02	4.44E-04	0.00E+00	7.70E-04	0.00E+00	1.80E-04	3.78E-04	4.78E-04	3.65E-04	5.16E-04	4.56E-04			7.189E-02
Mercury	5.46E-06	7.20E-06	1.74E-05	2.15E-04	1.59E-05	4.22E-04	4.44E-06	0.00E+00	7.70E-06	0.00E+00	1.80E-06	3.78E-06	4.78E-06	3.65E-06	5.16E-06	4.56E-06	7.15E-03	3.76E-02	4.548E-02
Nickel	2.18E-05	2.88E-05	6.95E-05	8.61E-04	6.37E-05	1.69E-03	1.78E-05	0.00E+00	3.08E-05	0.00E+00	7.19E-06	1.51E-05	1.91E-05	1.46E-05	2.07E-05	1.82E-05			2.876E-03
Selenium	5.46E-06	7.20E-06	1.74E-05	2.15E-04	1.59E-05	4.22E-04	4.44E-06	0.00E+00	7.70E-06	0.00E+00	1.80E-06	3.78E-06	4.78E-06	3.65E-06	5.16E-06	4.56E-06			7.189E-04
Silica (crystalline)	1.09E-01	1.44E-01	3.48E-01	4.30E+00	3.18E-01	8.44E+00	8.88E-02	0.00E+00	1.54E-01	0.00E+00	3.60E-02	7.56E-02	9.56E-02	7.29E-02	1.03E-01	9.11E-02			1.438E+01
Zinc	2.18E-04	2.88E-04	6.95E-04	8.61E-03	6.37E-04	1.69E-02	1.78E-04	0.00E+00	3.08E-04	0.00E+00	7.19E-05	1.51E-04	1.91E-04	1.46E-04	2.07E-04	1.82E-04			2.876E-02
Acetone		1.03E+00			2.90E+01	2.42E+00											2.84E+01	1.50E+02	6.086E+01
Acrylonitrile																	2.04E+00	1.07E+01	2.036E+00
Benzene																	1.04E+01	5.48E+01	1.041E+01
Carbon disulfide																	3.08E+00	1.62E+01	3.081E+00
Carbonyl sulfide																	2.05E+00	1.08E+01	2.054E+00
Carbon Tetrachloride																	4.29E-02	2.26E-01	4.293E-02
Chlorobenzene																	1.96E+00	1.03E+01	1.963E+00
Chlorodifluoromethane																	7.84E+00	4.13E+01	7.843E+00
Chloroethane (ethyl chloride)																	5.63E+00	2.96E+01	5.627E+00
Chloroform																	2.50E-01	1.32E+00	2.499E-01
1,4-Dichlorobenzene																	2.15E+00	1.13E+01	2.154E+00
Diesel Exhaust PM		2.953E-02	3.238E+00	1.295E+00	5.067E+02	2.729E+00	6.891E+01	6.891E+01	7.260E+00	0.000E+00	3.630E+00	1.378E+02	2.756E+02						1.076E+03
Ethyl benzene																	3.41E+01	1.80E+02	3.415E+01
Ethylene dichloride (1,2-Dichloroethane)																	2.83E+00	1.49E+01	2.831E+00
Ethylidene dichloride (1,1-Dichloroethane)																	1.62E+01	8.54E+01	1.623E+01
Fluorotrichloromethane (Chlorofluorocarbons)																	7.84E+00	4.13E+01	7.843E+00
Formaldehyde																	3.63E+02		3.628E+02
Hexane																	3.95E+01	2.08E+02	3.951E+01
Hydrogen chloride																	2.00E+04		1.997E+04
Hydrogen sulfide																	8.44E+01	4.44E+02	8.441E+01
Isopropyl alcohol (2-propanol)																	2.10E+02	1.11E+03	2.101E+02
Methyl chloroform																	4.47E+00	2.35E+01	4.468E+00
Methylene chloride																	8.47E+01	4.46E+02	8.475E+01
Methyl ethyl ketone																	3.57E+01	1.88E+02	3.567E+01
Perchloro-ethylene																	4.32E+01	2.27E+02	4.316E+01
Propylene dichloride (1,2-dichloropropane)																	1.42E+00	7.47E+00	1.419E+00
1,1,2,2-tetrachloroethane																	1.30E+01	6.84E+01	1.300E+01
Toluene																	2.53E+02	1.33E+03	2.526E+02
Trichloroethylene																	2.58E+01	1.36E+02	2.580E+01
Vinyl acetate		2.15E+00			6.06E+01	5.06E+00													6.785E+01
Vinyl chloride																	3.20E+01	1.68E+02	3.201E+01
Vinylidene chloride (1,1-dichloroethene)																	1.35E+00	7.12E+00	1.353E+00
Xylenes																	8.96E+01	4.72E+02	8.962E+01
PAHs w/o Napthalene																	3.33E+00		3.332E+00
Napthalene																	4.73E-01		4.730E-01
Dioxins & Furans																	3.20E-17		3.198E-17
Total TAC	1.10E-01	3.35E+00	3.59E+00	5.64E+00	5.97E+02	1.87E+01	6.90E+01	6.89E+01	7.42E+00	0.00E+00	3.67E+00	1.38E+02	2.76E+02	7.36E-02	1.04E-01	9.20E-02	2.14E+04	5.49E+03	2.26E+04

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

GCLF Toxics Emissions from Fugitive Landfill Gas and Flares for Final Operational Yea

Final Operational Year LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.307
Max. Daily Flared LFG	MM ft^3/day	7.362
Max. Yearly Flared LFG	MM ft^3/yr	2687.27
Hours of Operation	hours/day	24
Number of Flares		4
Max. Hourly Fugitive LFG	MM ft^3/hr	0.016
Max. Daily Fugitive LFG	MM ft^3/day	0.387
Max. Yearly Fugitive LFG	MM ft^3/yr	141.43

Final Operational Year Toxic Emissions From Fugitive Landfill Gas

Toxic Pollutant	CAS	EF (ppmv)[1]	MW (lb/mol)	Fugitive LFG Hourly Toxic Emissions (lb/hr)	Fugitive LFG Daily Toxic Emissions (lb/day)	Fugitive LFG Annual Toxic Emissions (lb/yr)
Acetone	67-64-1	7.01	58.08	1.71E-02	4.10E-01	1.50E+02
Acrylonitrile	107-13-1	0.55	53.06	1.22E-03	2.94E-02	1.07E+01
Benzene	71-43-2	1.91	78.11	6.25E-03	1.50E-01	5.48E+01
Carbon disulfide	75-15-0	0.58	76.13	1.85E-03	4.44E-02	1.62E+01
Carbonyl sulfide	463-58-1	0.49	60.07	1.23E-03	2.96E-02	1.08E+01
Carbon Tetrachloride	56-23-5	0.004	153.82	2.58E-05	6.19E-04	2.26E-01
Chloro-benzene	108-90-7	0.25	112.56	1.18E-03	2.83E-02	1.03E+01
Chlorodifluoromethane	75-45-6	1.3	86.47	4.71E-03	1.13E-01	4.13E+01
Chloroethane (ethyl chloride)	75-00-3	1.25	64.52	3.38E-03	8.11E-02	2.96E+01
Chloroform	67-66-3	0.03	119.39	1.50E-04	3.60E-03	1.32E+00
Dichlorobenzene	106-46-7	0.21	147	1.29E-03	3.11E-02	1.13E+01
Ethyl benzene	100-41-4	4.61	106.16	2.05E-02	4.92E-01	1.80E+02
Ethylene dichloride (1,2-Dichloroethane)	107-06-2	0.41	98.96	1.70E-03	4.08E-02	1.49E+01
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	2.35	98.97	9.75E-03	2.34E-01	8.54E+01
Fluorotrichloromethane (Chlorofluorocarbons)	75-69-4	1.30	86.47	4.71E-03	1.13E-01	4.13E+01
Hexane	110-54-3	6.57	86.18	2.37E-02	5.70E-01	2.08E+02
Hydrogen sulfide	7783-06-4	35.50	34.08	5.07E-02	1.22E+00	4.44E+02
Isopropyl alcohol (2-propanol)	67-63-0	50.10	60.10	1.26E-01	3.03E+00	1.11E+03
Mercury	7439-97-6	2.92E-04	350.77	4.29E-06	1.03E-04	3.76E-02
Methyl chloroform (1,1,1-Trichloroethane)	71-55-6	0.48	133.41	2.68E-03	6.44E-02	2.35E+01
Methylene chloride (Dichloromethane)	75-09-2	14.30	84.94	5.09E-02	1.22E+00	4.46E+02
Methyl ethyl ketone	78-93-3	7.09	72.10	2.14E-02	5.14E-01	1.88E+02
Perchloroethylene (Tetrachloroethylene)	127-18-4	3.73	165.83	2.59E-02	6.22E-01	2.27E+02
Propylene dichloride (1,2-dichloropropane)	78-87-5	0.18	112.99	8.53E-04	2.05E-02	7.47E+00
1,1,2,2-tetrachloroethane	79-34-5	1.11	167.85	7.81E-03	1.87E-01	6.84E+01
Toluene	108-88-3	39.30	92.13	1.52E-01	3.64E+00	1.33E+03
Trichloroethylene	79-01-6	2.82	131.14	1.55E-02	3.72E-01	1.36E+02
Vinyl chloride	75-01-4	7.34	62.50	1.92E-02	4.62E-01	1.68E+02
Vinylidene chloride (1,1-dichloroethene)	75-35-4	0.20	96.94	8.13E-04	1.95E-02	7.12E+00
Xylenes	1330-20-7	12.10	106.16	5.38E-02	1.29E+00	4.72E+02

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998. The emission factor for chlorofluorocarbons was obtained from SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99 and is assumed to incorporate fluorotrichloromethane with an EF of 0.76 ppmv in AP-42 Table 2.4-1.

2. Emission factors are calculated based on the standard default of 385.15 standard cubic feet per pound mole.

GCLF Toxics Emissions from Fugitive Landfill Gas and Flares for Final Operational Yea

Final Operational Year Toxic Emissions From Flares Only

Toxic Emissions From Flares Only	CAS	EF (lb/MM ft^3)	Flare Hourly Toxic Emissions (lb/hr)	Flare Daily Toxic Emissions (lb/day)	Flare Annual Toxic Emissions (lb/yr)
Acetone	67-64-1	0.0106	3.24E-03	7.78E-02	2.84E+01
Acrylonitrile	107-13-1	0.0008	2.32E-04	5.58E-03	2.04E+00
Benzene	71-43-2	0.0039	1.19E-03	2.85E-02	1.04E+01
Carbon disulfide	75-15-0	0.0011	3.52E-04	8.44E-03	3.08E+00
Carbonyl sulfide	463-58-1	0.0008	2.34E-04	5.63E-03	2.05E+00
Carbon Tetrachloride	56-23-5	0.0000	4.90E-06	1.18E-04	4.29E-02
Chlorobenzene	108-90-7	0.0007	2.24E-04	5.38E-03	1.96E+00
Chlorodifluoromethane	75-45-6	0.0029	8.95E-04	2.15E-02	7.84E+00
Chloroethane (ethyl chloride)	75-00-3	0.0021	6.42E-04	1.54E-02	5.63E+00
Chloroform	67-66-3	0.0001	2.85E-05	6.85E-04	2.50E-01
Dichlorobenzene	106-46-7	0.0008	2.46E-04	5.90E-03	2.15E+00
Ethyl benzene	100-41-4	0.0127	3.90E-03	9.36E-02	3.41E+01
Ethylene dichloride (1,2-Dichloroethane)	107-06-2	0.0011	3.23E-04	7.76E-03	2.83E+00
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	0.0060	1.85E-03	4.45E-02	1.62E+01
Fluorotrichloromethane (Chlorofluorocarbons)	75-45-8	0.0029	8.95E-04	2.15E-02	7.84E+00
Formaldehyde	50-00-0	0.1350	4.14E-02	9.94E-01	3.63E+02
Hexane	110-54-3	0.0147	4.51E-03	1.08E-01	3.95E+01
Hydrogen chloride[2]	7647-01-0	7.4300	2.28E+00	5.47E+01	2.00E+04
Hydrogen sulfide	7783-06-4	0.0314	9.64E-03	2.31E-01	8.44E+01
Isopropyl alcohol (2-propanol)	67-63-0	0.0782	2.40E-02	5.76E-01	2.10E+02
Mercury	7439-97-6	2.66E-06	8.16E-07	1.96E-05	7.15E-03
Methyl chloroform	71-55-6	0.0017	5.10E-04	1.22E-02	4.47E+00
Methylene chloride	75-09-2	0.0315	9.67E-03	2.32E-01	8.47E+01
Methyl ethyl ketone	78-93-3	0.0133	4.07E-03	9.77E-02	3.57E+01
Perchloro-ethylene	127-18-4	0.0161	4.93E-03	1.18E-01	4.32E+01
Propylene dichloride (1,2-dichloropropane)	78-87-5	0.0005	1.62E-04	3.89E-03	1.42E+00
1,1,2,2-tetrachloroethane	79-34-5	0.0048	1.48E-03	3.56E-02	1.30E+01
Toluene	108-88-3	0.0940	2.88E-02	6.92E-01	2.53E+02
Trichloroethylene	79-01-6	0.0096	2.95E-03	7.07E-02	2.58E+01
Vinyl chloride	75-01-4	0.0119	3.65E-03	8.77E-02	3.20E+01
Vinylidene chloride (1,1-dichloroethene)	75-35-4	0.0005	1.54E-04	3.71E-03	1.35E+00
Xylenes	1330-20-7	0.0334	1.02E-02	2.46E-01	8.96E+01
PAHs w/o Napthalene	1151	0.0012	3.80E-04	9.13E-03	3.33E+00
Napthalene	91-20-3	0.0002	5.40E-05	1.30E-03	4.73E-01
Dioxins & Furans	1086	1.19E-20	3.65E-21	8.76E-20	3.20E-17

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998, assuming 99% destruction removal efficiency (DRE). The emission factor for chlorofluorocarbons was obtained from SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99 and is assumed to incorporate fluorotrichloromethane with an EF of 0.76 ppmv in AP-42 Table 2.4-1, then assumes 99% DRE. Emission factors for formaldehyde and hydrochloric acid were obtained from SDAPCD Calculation Method L04 - Landfill Gas Default Composition, dated 8/24/99, where formaldehyde is based on EPA VOC speciation profile #1001, 1/90 and HCL is based on AP-42 raw landfill gas content with a 98% DRE.

2. Emissions are assumed to be controlled by the flare at 99% DRE, with the exception of HCL, where 98% DRE is assumed.

Annual & Hourly Solitac (Sealer Application) Product Toxic Emissions (lb/yr & lb/hr) for Final Operational Year

									Toxic Emissions, CAS number, EF (ppmw)			
									Annual Emission (lb/yr)		Hourly Emission (lb/hr)	
									Acetone	Vinyl Acetate	Acetone	Vinyl Acetate
									67-64-1	108-05-4	67-64-1	108-05-4
Source	**One-Way Road Length (ft)**	**Road Width (ft)**	**Road Area (ft^2)**	**Soiltac Application for Mix-In (gal/ft^2 rd)**	**Soiltac Application for Quarterly Sealant (gal/ft^2 rd)**	**Total Soiltac Usage (gal/yr)**	**Days of Application**	**EF (mg/L)**	**110**	**230**	**110**	**230**
Unpaved Stabilized Main Road (Quarterly Sealant)	700	40	28,000		0.01	1,120			1.03E+00	2.15E+00		
Borrow Area A Haul Road (Initial Mix-In)	5,100	20	102,000	0.07		28,560	5		2.62E+01	5.48E+01	5.24E+00	1.10E+01
Borrow Area A Haul Road (Quarterly Sealant)	5,100	20	102,000		0.01	3,060			2.81E+00	5.87E+00		
Borrow Area B Haul Road (Quarterly Sealant)	3,300	20	66,000		0.01	2,640			2.42E+00	5.06E+00		
Total									3.24E+01	6.78E+01	5.24E+00	1.10E+01

1) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for Year 30 as placed on an aerial overlay of the landfill area.

2) Soiltac application rate data (undiluted quantity) as provided by the manufacturer.

3) Initial mix-in of Soiltac road stabilizer is assumed to have occurred in a previous year for the main stabilized road and borrow area B stabilized road. Sealant is applied quarterly (4 times in Year 30). Initial mix-in for the BAA haul road will occur in one quater, with sealant applied during the remaining 3 quarters. The hourly emissions are based on mix-in of the road stabilizer on the BAA road, as product application rates are higher for mix-in (quarterly sealing will occur on different days).

4) Toxic emission factors as defined by a Solitac product test in 2004. According to the manufacturer, the product was contaminated by a residual product from another manufacturer when samples were collected from the tanker truck. The manufacturer performed more recent testing in 2010, where the product was taken directly from the manufacturing facility in glass bottles and VOCs, including acetone and vinyl acetate, were non-detect during lab testing.

Final Operational Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	14808-60-7	7440-66-6	9901
Source	PM10 (lb/hr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	1.01		2.02E-05	1.01E-06	1.01E-06	5.05E-05	1.01E-04	5.05E-05	5.05E-04	5.05E-06	2.02E-05	5.05E-06	1.01E-01	2.02E-04	0.00E+00
Unpaved Stabilized Main Road	1.56		3.12E-05	1.56E-06	1.56E-06	7.80E-05	1.56E-04	7.80E-05	7.80E-04	7.80E-06	3.12E-05	7.80E-06	1.56E-01	3.12E-04	1.50E-04
Unpaved Main Road	3.33		6.67E-05	3.33E-06	3.33E-06	1.67E-04	3.33E-04	1.67E-04	1.67E-03	1.67E-05	6.67E-05	1.67E-05	3.33E-01	6.67E-04	1.65E-02
Unpaved Landfill Deck	2.86		5.71E-05	2.86E-06	2.86E-06	1.43E-04	2.86E-04	1.43E-04	1.43E-03	1.43E-05	5.71E-05	1.43E-05	2.86E-01	5.71E-04	6.59E-03
Borrow Area A Haul Road	4.65		9.31E-05	4.65E-06	4.65E-06	2.33E-04	4.65E-04	2.33E-04	2.33E-03	2.33E-05	9.31E-05	2.33E-05	4.65E-01	9.31E-04	2.17E-01
Borrow Area A Haul Road Ends	1.84		3.67E-05	1.84E-06	1.84E-06	9.18E-05	1.84E-04	9.18E-05	9.18E-04	9.18E-06	3.67E-05	9.18E-06	1.84E-01	3.67E-04	3.00E-02
Borrow Area B Haul Road	1.08		2.15E-05	1.08E-06	1.08E-06	5.38E-05	1.08E-04	5.38E-05	5.38E-04	5.38E-06	2.15E-05	5.38E-06	1.08E-01	2.15E-04	7.09E-04
Borrow Area B Haul Road Ends	0.13		2.61E-06	1.30E-07	1.30E-07	6.52E-06	1.30E-05	6.52E-06	6.52E-05	6.52E-07	2.61E-06	6.52E-07	1.30E-02	2.61E-05	1.32E-02
Excavation at BAA	1.34		2.68E-05	1.34E-06	1.34E-06	6.69E-05	1.34E-04	6.69E-05	6.69E-04	6.69E-06	2.68E-05	6.69E-06	1.34E-01	2.68E-04	6.38E-02
Excavation at BAB	0.00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Daily Cover Loading at BAA	2.32		4.64E-05	2.32E-06	2.32E-06	1.16E-04	2.32E-04	1.16E-04	1.16E-03	1.16E-05	4.64E-05	1.16E-05	2.32E-01	4.64E-04	3.38E-03
Daily Cover Loading at BAB	0.00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Daily Cover Spreading at AF	0.54		1.08E-05	5.42E-07	5.42E-07	2.71E-05	5.42E-05	2.71E-05	2.71E-04	2.71E-06	1.08E-05	2.71E-06	5.42E-02	1.08E-04	1.69E-03
Daily Cover Compaction at AF	1.14		2.28E-05	1.14E-06	1.14E-06	5.70E-05	1.14E-04	5.70E-05	5.70E-04	5.70E-06	2.28E-05	5.70E-06	1.14E-01	2.28E-04	6.38E-02
MSW Spreading and Compacting	0.88		1.77E-05	8.85E-07	8.85E-07	4.42E-05	8.85E-05	4.42E-05	4.42E-04	4.42E-06	1.77E-05	4.42E-06	8.85E-02	1.77E-04	1.28E-01
Wind Erosion (BAA Disturbed)	2.42		4.84E-05	2.42E-06	2.42E-06	1.21E-04	2.42E-04	1.21E-04	1.21E-03	1.21E-05	4.84E-05	1.21E-05	2.42E-01	4.84E-04	0.00E+00
Wind Erosion (BAA Undisturbed)	3.39		6.78E-05	3.39E-06	3.39E-06	1.69E-04	3.39E-04	1.69E-04	1.69E-03	1.69E-05	6.78E-05	1.69E-05	3.39E-01	6.78E-04	0.00E+00
Wind Erosion (BAB Disturbed)	4.84		9.68E-05	4.84E-06	4.84E-06	2.42E-04	4.84E-04	2.42E-04	2.42E-03	2.42E-05	9.68E-05	2.42E-05	4.84E-01	9.68E-04	0.00E+00
Wind Erosion (BAB Undisturbed)	3.39		6.78E-05	3.39E-06	3.39E-06	1.69E-04	3.39E-04	1.69E-04	1.69E-03	1.69E-05	6.78E-05	1.69E-05	3.39E-01	6.78E-04	0.00E+00
Wind Erosion (Landfill Disturbed)	1.61		3.23E-05	1.61E-06	1.61E-06	8.07E-05	1.61E-04	8.07E-05	8.07E-04	8.07E-06	3.23E-05	8.07E-06	1.61E-01	3.23E-04	0.00E+00
Wind Erosion (Landfill Undisturbed)	5.65		1.13E-04	5.65E-06	5.65E-06	2.82E-04	5.65E-04	2.82E-04	2.82E-03	2.82E-05	1.13E-04	2.82E-05	5.65E-01	1.13E-03	0.00E+00
Total Hourly (lb/hr)			8.80E-04	4.40E-05	4.40E-05	2.20E-03	4.40E-03	2.20E-03	2.20E-02	2.20E-04	8.80E-04	2.20E-04	4.40E+00	8.80E-03	5.45E-01

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

Final Operational Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	14808-60-7	7440-66-6	9901
Source	PM10 (lb/yr)	EF (ppmw)	20	1	1	50	100	50	500	5	20	5	100000	200	--
Paved Main Road	1.09		2.18E-05	1.09E-06	1.09E-06	5.46E-05	1.09E-04	5.46E-05	5.46E-04	5.46E-06	2.18E-05	5.46E-06	1.09E-01	2.18E-04	0.00E+00
Unpaved Stabilized Main Road	1.44		2.88E-05	1.44E-06	1.44E-06	7.20E-05	1.44E-04	7.20E-05	7.20E-04	7.20E-06	2.88E-05	7.20E-06	1.44E-01	2.88E-04	2.95E-02
Unpaved Main Road	3.48		6.95E-05	3.48E-06	3.48E-06	1.74E-04	3.48E-04	1.74E-04	1.74E-03	1.74E-05	6.95E-05	1.74E-05	3.48E-01	6.95E-04	3.24E+00
Unpaved Landfill Deck	43.05		8.61E-04	4.30E-05	4.30E-05	2.15E-03	4.30E-03	2.15E-03	2.15E-02	2.15E-04	8.61E-04	2.15E-04	4.30E+00	8.61E-03	1.30E+00
Borrow Area A Haul Road	2.00		3.99E-05	2.00E-06	2.00E-06	9.98E-05	2.00E-04	9.98E-05	9.98E-04	9.98E-06	3.99E-05	9.98E-06	2.00E-01	3.99E-04	4.67E+02
Borrow Area A Haul Road Ends	1.19		2.37E-05	1.19E-06	1.19E-06	5.93E-05	1.19E-04	5.93E-05	5.93E-04	5.93E-06	2.37E-05	5.93E-06	1.19E-01	2.37E-04	3.92E+01
Borrow Area B Haul Road	4.30		8.61E-05	4.30E-06	4.30E-06	2.15E-04	4.30E-04	2.15E-04	2.15E-03	2.15E-05	8.61E-05	2.15E-05	4.30E-01	8.61E-04	1.39E-01
Borrow Area B Haul Road Ends	80.06		1.60E-03	8.01E-05	8.01E-05	4.00E-03	8.01E-03	4.00E-03	4.00E-02	4.00E-04	1.60E-03	4.00E-04	8.01E+00	1.60E-02	2.59E+00
Excavation at BAA	0.89		1.78E-05	8.88E-07	8.88E-07	4.44E-05	8.88E-05	4.44E-05	4.44E-04	4.44E-06	1.78E-05	4.44E-06	8.88E-02	1.78E-04	6.89E+01
Excavation at BAB	0.00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E+01
Daily Cover Loading at BAA	1.54		3.08E-05	1.54E-06	1.54E-06	7.70E-05	1.54E-04	7.70E-05	7.70E-04	7.70E-06	3.08E-05	7.70E-06	1.54E-01	3.08E-04	7.26E+00
Daily Cover Loading at BAB	0.00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Daily Cover Spreading at AF	0.36		7.19E-06	3.60E-07	3.60E-07	1.80E-05	3.60E-05	1.80E-05	1.80E-04	1.80E-06	7.19E-06	1.80E-06	3.60E-02	7.19E-05	3.63E+00
Daily Cover Compaction at AF	0.76		1.51E-05	7.56E-07	7.56E-07	3.78E-05	7.56E-05	3.78E-05	3.78E-04	3.78E-06	1.51E-05	3.78E-06	7.56E-02	1.51E-04	1.38E+02
MSW Spreading and Compacting	0.96		1.91E-05	9.56E-07	9.56E-07	4.78E-05	9.56E-05	4.78E-05	4.78E-04	4.78E-06	1.91E-05	4.78E-06	9.56E-02	1.91E-04	2.76E+02
Wind Erosion (BAA Disturbed)	0.30		6.08E-06	3.04E-07	3.04E-07	1.52E-05	3.04E-05	1.52E-05	1.52E-04	1.52E-06	6.08E-06	1.52E-06	3.04E-02	6.08E-05	0.00E+00
Wind Erosion (BAA Undisturbed)	0.43		8.51E-06	4.25E-07	4.25E-07	2.13E-05	4.25E-05	2.13E-05	2.13E-04	2.13E-06	8.51E-06	2.13E-06	4.25E-02	8.51E-05	0.00E+00
Wind Erosion (BAB Disturbed)	0.61		1.22E-05	6.08E-07	6.08E-07	3.04E-05	6.08E-05	3.04E-05	3.04E-04	3.04E-06	1.22E-05	3.04E-06	6.08E-02	1.22E-04	0.00E+00
Wind Erosion (BAB Undisturbed)	0.43		8.51E-06	4.25E-07	4.25E-07	2.13E-05	4.25E-05	2.13E-05	2.13E-04	2.13E-06	8.51E-06	2.13E-06	4.25E-02	8.51E-05	0.00E+00
Wind Erosion (Landfill Disturbed)	0.20		4.05E-06	2.03E-07	2.03E-07	1.01E-05	2.03E-05	1.01E-05	1.01E-04	1.01E-06	4.05E-06	1.01E-06	2.03E-02	4.05E-05	0.00E+00
Wind Erosion (Landfill Undisturbed)	0.71		1.42E-05	7.09E-07	7.09E-07	3.54E-05	7.09E-05	3.54E-05	3.54E-04	3.54E-06	1.42E-05	3.54E-06	7.09E-02	1.42E-04	0.00E+00
Total Annual (lb/yr)			2.88E-03	1.44E-04	1.44E-04	7.19E-03	1.44E-02	7.19E-03	7.19E-02	7.19E-04	2.88E-03	7.19E-04	1.44E+01	2.88E-02	1.08E+03

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	MSW Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting MSW	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[(2)] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Title 13 California Code of Regulations, Section 2423, Table 1 for off-road engines.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Estimate No. of Equipment

Source	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from BAB to landfill	20.300	BCY/trip	100.0	0.298	3.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAB Excavation	600.0	BCY/hr	--	--	1.0
Dozer	MSW Spreading	900.0	BCY/hr			1.0
Compactor	Compacting MSW	2728.0	CCY/hr			1.0
Compactor	Compacting Cover	1705.0	CCY/hr			1.0

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Emissions by Equipment

Source	Use	Diesel PM-10			Diesel PM-2.5		
		lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.223	2.455	482.4	0.223	2.455	482.4
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.015	0.165	32.4	0.015	0.165	32.4
Grader[1]	Haul Road Maintenance	0.051	0.051	10.1	0.051	0.051	10.1
Dozer	Excavation	0.064	0.701	137.8	0.064	0.701	137.8
Dozer	MSW Spreading	0.064	0.701	137.8	0.064	0.701	137.8
Compactor	Compacting MSW	0.064	0.701	137.8	0.064	0.701	137.8
Compactor	Compacting Cover	0.064	0.701	137.8	0.064	0.701	137.8
	Diesel Equipment Exhaust Total	**0.545**	**5.477**	**1,076.2**	**0.545**	**5.477**	**1,076.2**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area

Area	Diesel PM-10			Diesel PM-2.5		
	lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Main UP	0.016	0.016	3.24	0.016	0.016	3.24
Main UPS	0.0002	0.0002	0.03	0.0002	0.0002	0.03
Main UP Deck	0.007	0.007	1.30	0.007	0.007	1.30
BAA Haul	0.217	2.381	467.50	0.217	2.381	467.50
BAA UNS	0.030	0.198	39.25	0.030	0.198	39.25
BAB Haul	0.001	0.001	0.14	0.001	0.001	0.14
BAB UNS	0.013	0.013	2.59	0.013	0.013	2.59
BABOPS - Excavation[1]	0.000	0.000	68.91	0.000	0.000	68.91
BABOPS - DC Loading[1]	0.000	0.000	0.00	0.000	0.000	0.00
BAAOPS - Excavation	0.064	0.701	68.91	0.064	0.701	68.91
BAAOPS - DC Loading	0.003	0.037	7.26	0.003	0.037	7.26
LFOPS - Spread MSW	0.064	0.701	137.82	0.064	0.701	137.82
LFOPS - Compact MSW	0.064	0.701	137.82	0.064	0.701	137.82
LFOPS - Daily Cover Unload/Spread	0.002	0.019	3.63	0.002	0.019	3.63
LFOPS - Compacting Daily Cover	0.064	0.701	137.82	0.064	0.701	137.82
Diesel Equipment Exhaust Total	0.54	5.48	1076.21	0.54	5.48	1076.21

Table Notes:

1. On a daily basis (for 24-hr PM10 impacts) it was determined that higher impacts would occur when the maximum daily excavation & loading occurred at BAA. Therefore, daily emissions are based on the maximum amount excavated from BAA and traveling on BAA haul roads daily, while annual impacts include the total amount of soil excavated from BAA and BAB and traveling on both haul roads. Therefore, BAB haul roads show only annual emissions.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Division of Emissions

Area	Scraper		Scraper		Grader	
	VMT/day	% of Emissions	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	--	--	58.14	32.1%
Main UPS	--	--	--	--	0.53	0.3%
Main UP Deck	--	--	--	--	23.26	12.8%
BAA Haul	193	90.8%	23,379	90.8%	3.86	2.1%
BAA UNS	15	7.1%	1,834	7.1%	46.52	25.7%
BAB Haul	0	0.0%	0	0.0%	2.5	1.4%
BAB UNS[1]	0	0.0%	0	0.0%	46.5	25.7%
BAA Loading	3.0	1.4%	363	1.4%	--	--
BAB Loading	0	0.0%	0	0.0%	--	--
Daily Cover Unloading/Spread	1.5	0.7%	182	0.7%	--	--
Totals	**212.5**		**25,757.88**	**100.0%**	**181**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Main Unpaved DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.016	0.016
Daily Emissions	lb/day	0.016	0.016
Annual Emissions	lb/year	3.238	3.238

Main Unpaved Stabilized DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.0002	0.0002
Daily Emissions	lb/day	0.0002	0.0002
Annual Emissions	lb/year	0.030	0.030

Main Unpaved Deck DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.0066	0.0066
Daily Emissions	lb/day	0.0066	0.0066
Annual Emissions	lb/year	1.295	1.295

BAA Haul DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.217	0.217
Daily Emissions	lb/day	2.381	2.381
Annual Emissions	lb/year	467.498	467.498

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

BAA UNS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.030	0.030
Daily Emissions	lb/day	0.198	0.198
Annual Emissions	lb/year	39.247	39.247

BAB Haul DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.001	0.001
Daily Emissions	lb/day	0.001	0.001
Annual Emissions	lb/year	0.139	0.139

BAB UNS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.013	0.013
Daily Emissions	lb/day	0.013	0.013
Annual Emissions	lb/year	2.590	2.590

BAAOPS - Excavation DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.07	0.07
Daily Emissions	lb/day	0.74	0.74
Annual Emissions	lb/year	76.17	76.17

BABOPS - Excavation DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	lb/year	68.91	68.91

LFOPS DPM Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.19	0.19
Daily Emissions	lb/day	2.12	2.12
Annual Emissions	lb/year	417.09	417.09

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	MSW Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting MSW	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[(2)] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Source	Emission Factor (g/bhp-hr)[1,2]					
	ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	0.3	2.59	4.7	4.87E-03	0.15	0.15
Scraper (Scraper Engine)	0.3	2.59	4.7	4.87E-03	0.15	0.15
Grader	0.3	3.7	4.7	4.87E-03	0.22	0.22
Dozer	0.3	2.59	4.7	4.87E-03	0.15	0.15
Dozer	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.87E-03	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. For CO, based on Tier 2 emission standards specified in USEPA's Emission Standards Reference Guide: Nonroad Compression-Ignition Engines -- Exhaust Emission Standards.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Estimate No. of Equipment

Source	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from BAB to landfill	20.300	BCY/trip	100.0	0.298	3.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAB Excavation	600.0	BCY/hr	--	--	1.0
Dozer	MSW Spreading	900.0	BCY/hr			1.0
Compactor	Compacting MSW	2728.0	CCY/hr			1.0
Compactor	Compacting Cover	1705.0	CCY/hr			1.0

Emissions by Equipment

Source	Use	Emissions (lb/hr)					
		ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.446	3.854	6.994	0.007	0.223	0.223
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.030	0.259	0.470	0.000	0.015	0.015
Grader[1]	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	MSW Spreading	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting MSW	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Cover	0.128	1.101	1.998	0.002	0.064	0.064
	Diesel Equipment Exhaust Total	**1.057**	**9.382**	**16.554**	**0.017**	**0.545**	**0.545**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment

Source	Use	Emissions (lb/day)					
		ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	4.911	42.396	76.935	0.080	2.455	2.455
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.330	2.847	5.167	0.005	0.165	0.165
Grader[1]	Haul Road Maintenance	0.070	0.864	1.098	0.001	0.051	0.051
Dozer	Excavation	1.403	12.112	21.979	0.023	0.701	0.701
Dozer	MSW Spreading	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting MSW	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Cover	1.403	12.112	21.979	0.023	0.701	0.701
	Diesel Equipment Exhaust Total	**10.922**	**94.554**	**171.114**	**0.177**	**5.477**	**5.477**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Emissions by Equipment

Source	Use	Emissions (ton/yr)					
		ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.48	4.16	7.56	0.01	0.24	0.24
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.03	0.28	0.51	0.00	0.02	0.02
Grader[1]	Haul Road Maintenance	0.01	0.08	0.11	0.00	0.01	0.01
Dozer	Excavation	0.14	1.19	2.16	0.00	0.07	0.07
Dozer	MSW Spreading	0.14	1.19	2.16	0.00	0.07	0.07
Compactor	Compacting MSW	0.14	1.19	2.16	0.00	0.07	0.07
Compactor	Compacting Cover	0.14	1.19	2.16	0.00	0.07	0.07
	Diesel Equipment Exhaust Total	**1.07**	**9.29**	**16.81**	**0.02**	**0.54**	**0.54**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area: lb/hr

Area	Emissions (lb/hr)					
	ROG	CO	NOx	SO2	PM10	PM2.5
Main UP	0.022	0.277	0.352	0.000	0.016	0.016
Main UPS	0.0002	0.0025	0.0032	0.0000	0.0002	0.0002
Main UP Deck	0.009	0.111	0.141	0.000	0.007	0.007
BAA Haul	0.434	3.754	6.802	0.007	0.217	0.217
BAA UNS	0.052	0.512	0.808	0.001	0.030	0.030
BAB Haul	0.001	0.012	0.015	0.000	0.001	0.001
BAB UNS	0.018	0.222	0.282	0.000	0.013	0.013
BABOPS - Excavation[1]	0.000	0.000	0.000	0.000	0.000	0.000
BABOPS - DC Loading[1]	0.000	0.000	0.000	0.000	0.000	0.000
BAAOPS - Excavation	0.128	1.101	1.998	0.002	0.064	0.064
BAAOPS - DC Loading	0.007	0.058	0.106	0.000	0.003	0.003
LFOPS - Spread MSW	0.128	1.101	1.998	0.002	0.064	0.064
LFOPS - Compact MSW	0.128	1.101	1.998	0.002	0.064	0.064
LFOPS - Daily Cover Unload/Spread	0.003	0.029	0.053	0.000	0.002	0.002
LFOPS - Compacting Daily Cover	0.128	1.101	1.998	0.002	0.064	0.064
Diesel Equipment Exhaust Total	1.057	9.382	16.554	0.017	0.545	0.545

Table Notes:

1. On a daily basis (for 24-hr PM10 impacts) it was determined that higher impacts would occur when the maximum daily excavation & loading occurred at BAA. Therefore, daily emissions are based on the maximum amount excavated from BAA and traveling on BAA haul roads daily, while annual impacts include the total amount of soil excavated from BAA and BAB and traveling on both haul roads. Therefore, BAB haul roads show only annual emissions.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Emissions by Area: lb/day

Area	Emissions (lb/day)					
	ROG	CO	NOx	SO2	PM10	PM2.5
Main UP	0.022	0.277	0.352	0.000	0.016	0.016
Main UPS	0.0002	0.0025	0.0032	0.0000	0.0002	0.0002
Main UP Deck	0.009	0.111	0.141	0.000	0.007	0.007
BAA Haul	4.761	41.106	74.585	0.077	2.381	2.381
BAA UNS	0.388	3.415	6.077	0.006	0.198	0.198
BAB Haul	0.001	0.012	0.015	0.000	0.001	0.001
BAB UNS	0.018	0.222	0.282	0.000	0.013	0.013
BABOPS - Excavation[1]	0.000	0.000	0.000	0.000	0.000	0.000
BABOPS - DC Loading[1]	0.000	0.000	0.000	0.000	0.000	0.000
BAAOPS - Excavation	1.403	12.112	21.979	0.023	0.701	0.701
BAAOPS - DC Loading	0.074	0.641	1.164	0.001	0.037	0.037
LFOPS - Spread MSW	1.403	12.112	21.979	0.023	0.701	0.701
LFOPS - Compact MSW	1.403	12.112	21.979	0.023	0.701	0.701
LFOPS - Daily Cover Unload/Spread	0.037	0.321	0.582	0.001	0.019	0.019
LFOPS - Compacting Daily Cover	1.403	12.112	21.979	0.023	0.701	0.701
Diesel Equipment Exhaust Total	10.922	94.554	171.114	0.177	5.477	5.477

Table Notes:

1. On a daily basis (for 24-hr PM10 impacts) it was determined that higher impacts would occur when the maximum daily excavation & loading occurred at BAA.

Emissions by Area: ton/yr

Area	Emissions (tons/yr)					
	ROG	CO	NOx	SO2	PM10	PM2.5
Main UP	0.00	0.03	0.03	0.00	0.00	0.00
Main UPS	0.00	0.00	0.00	0.00	0.00	0.00
Main UP Deck	0.00	0.01	0.01	0.00	0.00	0.00
BAA Haul	0.47	4.04	7.32	0.01	0.23	0.23
BAA UNS	0.04	0.34	0.60	0.00	0.02	0.02
BAB Haul	0.00	0.00	0.00	0.00	0.00	0.00
BAB UNS	0.00	0.02	0.03	0.00	0.00	0.00
BABOPS - Excavation[1]	0.07	0.59	1.08	0.00	0.03	0.03
BABOPS - DC Loading[1]	0.00	0.00	0.00	0.00	0.00	0.00
BAAOPS - Excavation	0.07	0.59	1.08	0.00	0.03	0.03
BAAOPS - DC Loading	0.01	0.06	0.11	0.00	0.00	0.00
LFOPS - Spread MSW	0.14	1.19	2.16	0.00	0.07	0.07
LFOPS - Compact MSW	0.14	1.19	2.16	0.00	0.07	0.07
LFOPS - Daily Cover Unload/Spread	0.00	0.03	0.06	0.00	0.00	0.00
LFOPS - Compacting Daily Cover	0.14	1.19	2.16	0.00	0.07	0.07
Diesel Equipment Exhaust Total	1.07	9.29	16.81	0.02	0.54	0.54

Table Notes:

1. On a daily basis (for 24-hr PM10 impacts) it was determined that higher impacts would occur when the maximum daily excavation & loading occurred at BAA.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Final Operational Year

Division of Emissions

Area	Scraper		Scraper		Grader	
	VMT/day	% of Emissions	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	--	--	58.14	32.1%
Main UPS	--	--	--	--	0.53	0.3%
Main UP Deck	--	--	--	--	23.26	12.8%
BAA Haul	193	90.8%	23,379	90.8%	3.86	2.1%
BAA UNS	15	7.1%	1,834	7.1%	46.52	25.7%
BAB Haul	0	0.0%	0	0.0%	2.5	1.4%
BAB UNS[1]	0	0.0%	0	0.0%	46.5	25.7%
BAA Loading	3.0	1.4%	363	1.4%	--	--
BAB Loading	0	0.0%	0	0.0%	--	--
Daily Cover Unloading/Spread	1.5	0.7%	182	0.7%	--	--
Totals	**212.5**		**25,757.88**	**100.0%**	**181**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

GCLF Emissions from the Paved Main Road for Final Operational Year

Paved Road equation from AP-42 (1/1995) Section 13.2.1 with additional speed factor:

$EF=k(sL/2)^{0.65}(W/3)^{1.5}(S/SF)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.016	0.007
Particle Size Multiplier (k)		0.016	0.0073
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Loading (sL)	g/m^2	0.4	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Speed Factor (SF)	mph	32.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	2,800
Trucks per day	trucks/day	675
Daily VMT	VMT/day	716

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.01	0.46
Daily Emissions	lb/day	11.12	5.07
Annual Emissions	lb/year	1.09	0.50

Notes:

1) Paved road emission factor is calculated with the paved road equation in AP-42 Section 13.2.1 (1/1995), with an additional speed factor, where trucks travel an average of 7.5 mph, without control efficiency. However, measures such as sweeping and other track out controls will be employed.
2) The $PM_{2.5}$ emission factor is based on AP-42 Section 13.2.2, (1/1995), where the particle size multiplier, k value, in Table 13.2.1.3 is 0.0073 lb/VMT (Note: This value is more conservative than the new AP-42 Section 13.2.1 (1/2006), with a k value of 0.0024 lb/VMT).

3) Silt loading (sL) value is based on 95% control and the AP-42 Table 13.2.1-3 mean silt loading value of 7.4 g/m^2 for municipal solid waste landfills. Control will be achieved through a combination of sweeping, track-out programs, and other measures as necessary.
4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.

5) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.
6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Final Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.082	0.022
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)		15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	700
Trucks per day	trucks/day	675
Daily VMT	VMT/day	179

E=EF x VMT

E=Emissions (lbs/day)

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	
Hourly Emissions	lb/hour	1.33	0.35	
Daily Emissions	lb/day	14.65	3.87	
Annual Emissions	ton/yr	1.44	0.38	3200/5000

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

3) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Year 30.

4) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Silt value was the district default of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

6) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

GCLF Emissions from the Unpaved Stabilized Main Road for Final Operational Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0

PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	700
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	0.53

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.23	0.025
Daily Emissions	lb/day	0.23	0.025
Annual Emissions	ton/yr	0.0005	0.0001

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.

3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unpaved Unstabilized Main Road for Final Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.273	0.072
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance unpaved road	feet	500
Trucks per day	trucks/day	675
Daily VMT	VMT/day	128

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	
Hourly Emissions	lb/hour	3.17	0.84	
Daily Emissions	lb/day	34.88	9.20	
Annual Emissions	ton/yr	3.43	0.90	3200/5000

Notes:

1) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for Year 30.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

GCLF Emissions from the Unpaved Unstabilized Main Road for Final Operational Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	500
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.02
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	ton/yr	0.05	0.01

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Unpaved Unstabilized Landfill Deck Road for Final Operational Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.600	0.158
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	33	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	200
Trash trucks per day	trucks/day	675
Daily VMT	VMT/day	51

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	
Hourly Emissions	lb/hour	2.79	0.74	
Daily Emissions	lb/day	30.69	8.10	
Annual Emissions	ton/yr	3.02	0.80	3200/5000

Notes:

1) Number of vehicles per day is maximum amount of vehicles per day. Vehicle mix for calculating vehicle weight and other vehicle parameters is based on a mix of large soil trucks and smaller refuse trucks.

2) One way road distance is considered 200 feet of deck prior to dumping refuse.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

GCLF Emissions from the Unpaved Unstabilized Landfill Deck Road for Final Operational Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	200
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.08

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.07	0.007
Daily Emissions	lb/day	0.13	0.014
Annual Emissions	lb/year	40.03	4.44

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance is considered 200 feet of deck prior to dumping refuse.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Borrow Area A Haul Road for Final Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	5,100
Average load	BCY/scraper	20.3
Scrapers per day		91
Other scrapers per day		9
Max Daily Soil	CY/day	1,852
Daily VMT	VMT/day	193
Scrapers per year		11,002
Other scrapers per year		1,100
Annual Soil	CY/year	223,333
Annual VMT	VMT/year	23,379

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	2.99	0.79
Daily Emissions	lb/day	32.91	8.69
Annual Emissions	ton/yr	1.99	0.53

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency for chemical stabilization. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

GCLF Emissions from the Borrow Area A Haul Road for Final Operational Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	5,100
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	3.86

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.66	0.185
Daily Emissions	lb/day	1.66	0.18
Annual Emissions	ton/yr	0.003	0.0004

Notes:

1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.

3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Borrow Area A Haul Road for Final Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	1.251	0.330
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	33	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	BCY/scraper	20.3
Scrapers per day		91
Other scrapers per day		9
Max Daily Soil	CY/day	1,852
Daily VMT	VMT/day	15
Scrapers per year		11,002
Other scrapers per year		1,100
Annual Soil	CY/year	223,333
Annual VMT	VMT/year	1,834

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.71	0.45
Daily Emissions	lb/day	18.76	4.95
Annual Emissions	ton/yr	1.15	0.30

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

GCLF Emissions from the Unstabilized Borrow Area A Haul Road for Final Operational Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by using approximately last 200 feet of each end of road.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Borrow Area B Haul Road for Final Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	3,300
Average load	BCY/scraper	20.3
Scrapers per day		0
Other scrapers per day		0
Max Daily Soil	CY/day	0
Daily VMT	VMT/day	0
Scrapers per year		0
Other scrapers per year		0
Annual Soil	CY/year	0
Annual VMT	VMT/year	0

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

GCLF Emissions from the Borrow Area B Haul Road for Final Operational Year

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	lb/year	0.00	0.00

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) Silt value was the district default value of silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009. It is also the average default unpaved haul road silt value shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency for chemical stabilization. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

6) In the Final Operational Year, 148,730 CY of soil is excavated from BAA for daily cover use and 176,138 CY of soil is excavated from BAB for daily cover use. However, on a daily basis (for 24-hr PM10 impacts) it was determined that higher impacts would occur when the maximum daily excavation occurred at BAA. Therefore, daily emissions are based on the maximum amount excavated from BAA and traveling on BAA haul roads daily, while annual impacts include the total amount of soil excavated from BAA and BAB and traveling on both haul roads. Therefore, BAB haul roads show only annual emissions.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	3,300
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	2.50

GCLF Emissions from the Borrow Area B Haul Road for Final Operational Year

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.08	0.12
Daily Emissions	lb/day	1.08	0.12
Annual Emissions	lb/year	4.30	0.48

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for the Final Operational Year.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Borrow Area B Haul Road for Final Operational Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	1.251	0.330
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s) Unpaved Road	%	33	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	BCY/scraper	20.3
Scrapers per day		0
Other scrapers per day		0
Max Daily Soil	CY/day	0
Daily VMT	VMT/day	0
Scrapers per year		0
Other scrapers per year		0
Annual Soil	CY/year	0
Annual VMT	VMT/year	0

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

GCLF Emissions from the Unstabilized Borrow Area B Haul Road for Final Operational Year

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	lb/year	0.00	0.00

Notes:

1) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) One way road distance was obtained by using approximately last 200 feet of each end of road.

3) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008 or from the default haul road parameters shown in the SDAPCD Haul Road Emissions Process Description, dated Oct 5, 1998.

4) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

5) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency. The PM2.5 emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM10 and PM2.5 that was not approved by SDAPCD for this assessment.

6) In the Final Operational Year, 148,730 CY of soil is excavated from BAA for daily cover use and 176,138 CY of soil is excavated from BAB for daily cover use. However, on a daily basis (for 24-hr PM10 impacts) it was determined that higher impacts would occur when the maximum daily excavation occurred at BAA. Therefore, daily emissions are based on the maximum amount excavated from BAA and traveling on BAA haul roads daily, while annual impacts include the total amount of soil excavated from BAA and BAB and traveling on both haul roads. Therefore, BAB haul roads show only annual emissions.

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

GCLF Emissions from the Unstabilized Borrow Area B Haul Road for Final Operational Year

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	lb/year	80.06	8.89

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by using approximately last 200 feet of each end of road.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from Excavation at Borrow Areas A and B for Final Operational Year

Borrow Area A

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled	lbs/1000 BCY	10.99	1.65	0.15
Emission Factor, controlled	lbs/1000 BCY	7.95	1.19	
Hours of Operation	hours/day	11		
Operational Days per Year	days/year	307		
Daily Excavation volume	CY/day	1,852		
Annual Excavation volume	CY/year	223,333		

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))
EF = Emission Factor (lbs/1000 BCY)
EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.34	0.20
Daily Emissions	lb/day	14.72	2.21
Annual Emissions	ton/yr	0.89	0.13

Borrow Area B

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled	lbs/1000 BCY	16.49	2.47	0.15
Emission Factor, controlled	lbs/1000 BCY	11.92	1.79	
Hours of Operation	hours/day	11		
Operational Days per Year	days/year	307		
Daily Excavation volume	CY/day	0		
Annual Excavation volume	CY/year	0		

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))
EF = Emission Factor (lbs/1000 BCY)
EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	ton/yr	0.00	0.00

Notes:

1) In the Final Operational Year, 223,333 CY of soil is excavated from BAA for daily cover use

2) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. The emission factor was adjusted to account for 33% silt. A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B. Additionally, an uncontrolled moisture content of 6.71% is used for the uncontrolled EF and a controlled moisture content of 8.46% is used from the controlled EF.
3) Excavation volumes are based on information from Volume IV - AEI Appendix F, October 2008.
4) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to excavation.

5) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Daily Cover Operations for Final Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading Scraper at Borrow Areas A and B				
Emission Factor, uncontrolled	lbs/1000 BCY	112.62	16.89	0.15
Emission Factor, controlled	lbs/1000 BCY	13.79	2.07	
Unloading Scraper at the Working Face of the Landfill				
Emission Factor, uncontrolled	lbs/1000 BCY	27.82	4.17	
Emission Factor, controlled	lbs/1000 BCY	3.22	0.48	
Compacting Daily Cover at Working Face of the Landfill				
Emission Factor, controlled	lbs/1000 CCY	6.77	1.02	
Hours of Operation	hours	11		
Operational Days per Year	days/year	307		
Max Daily Cover Soil from BAA	CY/day	1,852		
Annual Cover Soil from BAA	CY/year	223,333		
Max Daily Cover Soil from BAB	CY/day	0		
Annual Cover Soil from BAB	CY/year	0		

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading Scraper at Borrow Area A			
Hourly Emissions	lb/hour	2.32	0.35
Daily Emissions	lb/day	25.53	3.83
Annual Emissions	ton/yr	1.54	0.23
Loading Scraper at Borrow Area B			
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	ton/yr	0.00	0.00
Unloading Scraper at the Working Face of the Landfill			
Hourly Emissions	lb/hour	0.54	0.08
Daily Emissions	lb/day	5.96	0.89
Annual Emissions	ton/yr	0.36	0.05
Compacting Daily Cover at Working Face of Landfill			
Hourly Emissions	lb/hour	1.14	0.17
Daily Emissions	lb/day	12.53	1.88
Annual Emissions	ton/yr	0.76	0.11

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. The emission factor was adjusted to account for 33% silt. A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B. Additionally, an uncontrolled moisture content of 6.71% is used for the uncontrolled EF and a controlled moisture content of 8.46% is used from the controlled EF.
2) Soil parameters are based on information from Volume IV - AEI Appendix F, October 2008.
3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Municipal Solid Waste Operations for Final Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
MSW Spreading			
Emission Factor, uncontrolled	lbs/1000 tons	1.37	0.69
Emission Factor, controlled	lbs/1000 tons	1.37	0.69
Average Dozing Distance	feet	100	100
Maximum Capacity	LCY/hr	1946.1	1946.1
Wet Density, lb/LCY	lb/LCY	525	525
Operator		0.75	0.75
Material Source		1	1
Material Properties		1.0	1.0
Grade		1	1
Expansion Factor	BCY/LCY	1.00	1.00
Material Compaction Factor	CCY/BCY	0.39	0.39
Adjusted Capacity	LCY/hr	1459.5	1459.5
Silt, %	%	12.7	12.7
Moisture Content (Uncontrolled)		19.6	19.6
Moisture Content (Controlled)		19.6	19.6
MSW Compactor Travel			
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143
Emission Factor, controlled	lb/1,000 tons	0.286	0.143
MSW Compaction			
Emission Factor, uncontrolled	lb/1,000 tons	0.286	0.143
Emission Factor, controlled	lb/1,000 tons	0.286	0.143
Compactor Wt.	lb	113,350	113,350
Lift Thickness (Compacted)	in	12	12
Normal Operation Speed	mph	8	8
Max. Allowed Speed	mph	7.5	7.5
Speed	mph	7.5	7.5
Compactor Width per Pass	ft	9.3	9.3
No. Passes		5	5
Grade		1	1
Wet Density	lb/BCY	525	525
Wet Density	lb/LCY	525	525
Wet Density	lb/CCY	1350	1350
Material Volume Change	BCY/LCY	1	1
Material Compaction Factor	CCY/BCY	0.39	0.39
Max Capacity	CCY/hr	2728	2728
Adjusted Capacity	CCY/hr	2728	2728
Silt	%	12.7	12.7
Moisture Content, Uncontrolled	%	19.6	19.6
Moisture Content, Controlled	%	19.6	19.6
Hours of Operation	hours	11	11

E=EF x MSWM x 1000

E = Emissions (lbs/day (year))
EF = Emission Factor (lbs/1000 tons)
MSWM = MSW Mass (tons/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Spreading and Compacting MSW			
Hourly Emissions	lb/hour	0.88	0.44
Daily Emissions	lb/day	9.73	4.88
Annual Emissions	ton/yr	0.96	0.48

Notes:

1) Emission factors based on Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) Load factors are from Caterpillar Performance Handbook, 33d edition, 2002, pg 26-4, liner--natural bed clay, rock--broken granite, soil--25% rock 75% soil

3) Compaction factors are from Army Field Manual FM 5-434, 1994, Table 1-1

4) Speed and number of passes from Army Field Manual FM 5-434, 1994, Table 11-3

5) MSW silt content and moisture content from EPA-450/3-89-019, May, 1989, Table 5-2, pg 5-9.

6) MSW uncompacted (in-truck) density (lb/LCY) based on recommended default density for residential rear loaders in "Determining Remaining Permitted Capacity of California Landfills," CIWMB, April, 1995, Appendix A-3, Table A3-1.

7) MSW compacted density (lb/CCY) based on proposed in-place density in the application and EIR, 1350 lb/cy^3.

8) MSW compaction ratio based on compacting waste waste from in-truck density to in-place density.

9) MSW compacted lift thickness estimated from thickness range necessary to achieve the compacted density, Caterpillar Performance Handbook, 33d edition, 2002, pg 25-10.

10) MSW number of passes based on using Caterpillar 836G and method in "Determining Remaining Permitted Capacity of California Landfills," CIWMB, April, 1995, Appendix B.

11) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

12) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Landfill Gas Flares for Final Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Emission Factor	lb/MM ft^3	10	10	30	1.5	7.34	2.66
Max. Hourly Flared LFG	MM ft^3/hr	0.307	0.307	0.307	0.307	0.307	0.307
Max. Daily Flared LFG	MM ft^3/day	7.362	7.362	7.362	7.362	7.362	7.362
Max. Yearly Flared LFG	MM ft^3/yr	2,687.27	2,687.27	2,687.27	2,687.27	2,687.27	2,687.27
Methane Fraction of LFG	%	50%	50%	50%	50%	--	--
Hours of Operation	hours/day	24	24	24	24	24	24
Number of Flares		4	4	4	4	4	4

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Hourly Emissions	lb/hour	1.53	1.53	4.60	0.23	2.25	0.82
Daily Emissions	lb/day	36.81	36.81	110.44	5.52	54.04	19.58
Annual Emissions	ton/yr	6.7	6.7	20.2	1.0	9.9	3.6

$E = EF \times F_{LFG}$

E= Emissions (lbs/day)

EF = Emission Factor (lb/MM ft^3)

F_{LFG} = Flared LFG (MM ft^3/day)

Notes:

1) Emission factor for $PM_{10}/PM_{2.5}$ of 10 lb/MMft^3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where TSP = 0.020 lb/MMBtu and PM_{10} = TSP.

2) Emission factor for NOx of 30 lb/MMft3 based on BACT for Enclosed Flares - SDAPCD ATC for adding one landfill gas flare system at Sycamore Landfill (Application No. 980163).

3) Emission factor for CO of 1.5 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where CO = 0.003 lb/MMBtu.

4) Emission factor for SOx of 7.34 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 raw gas sulfur content and a 98% conversion rate.

5) Emission factor for VOC/ROG of 2.66 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 Section 2.4, (9/1997), Table 2.4-1, and assumes 595 ppmv as hexane and a 98% DRE.

6) Max Flared LFG based on LandGEM modeling using the District's parameter's k = 0.02 yr-1 and Lo = 110. The values are derived from an annual value of 119,763,577 m3/yr of uncontrolled LFG in the Final Operational Year, then 90% capture for the flare.

7) Number of flares is based on a total fuel throughput rating of 1500 scfm per flare. Five (5) flares are needed in the Final Operational Year.

8) To be conservative, it is assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

GCLF Criteria Emissions from Fugitive Landfill Gas for Final Operational Year

Final Operational Year LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.307
Max. Daily Flared LFG	MM ft^3/day	7.362
Max. Yearly Flared LFG	MM ft^3/yr	2687.27
Hours of Operation	hours/day	24
Number of Flares		4
Max. Hourly Fugitive LFG	MM ft^3/hr	0.016
Max. Daily Fugitive LFG	MM ft^3/day	0.387
Max. Yearly Fugitive LFG	MM ft^3/yr	141.43

Final Operational Year Criteria Pollutant Emissions From Fugitive Landfill Gas

Yr	Fugitive LFG (MM ft^3/hr)	Fugitive LFG (MM ft^3/yr)	Hourly Criteria Pollutant Emissions (lbs/hr)		Annual Criteria Pollutant Emissions (ton/yr)	
			CO	VOC	CO	VOC
			141	**595**	**141**	**595**
			28.01	**86.17**	**28.01**	**86.17**
22	0.016	141.435	0.17	2.15	0.73	9.41

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998.

GCLF Emissions from Wind Erosion for Final Operational Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.5376	30.3806	
Emission Factor, Undisturbed	lb/acre-hour	0.5649	0.0847	
Emission Factor, Undisturbed	lb/acre-year	141.7764	21.2665	
Hours of Operation	hours/day	24		
Operational Days per Year	days/year	365		
Frequency of Wind over threshold	hours/year	0.029		
Borrow Area A Disturbed Area	acres	3		
Borrow Area A Undisturbed, Unvegetated Areas	acres	6		
Borrow Area B Disturbed Area	acres	6		
Borrow Area B Undisturbed, Unvegetated Areas	acres	6		
Landfill Area Disturbed Area	acres	2		
Landfill Area Undisturbed, Unvegetated Areas	acres	10		

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Borrow Area A Disturbed Area			
Hourly Emissions	lb/hour	2.42	0.36
Daily Emissions	lb/day	58.11	8.72
Annual Emissions	ton/yr	0.30	0.05
Borrow Area A Undisturbed Area			
Hourly Emissions	lb/hour	3.39	0.51
Daily Emissions	lb/day	81.35	12.20
Annual Emissions	tton/yr	0.43	0.06
Borrow Area B Disturbed Area			
Hourly Emissions	lb/hour	4.84	0.73
Daily Emissions	lb/day	116.22	17.43
Annual Emissions	ton/yr	0.61	0.09
Borrow Area B Undisturbed Area			
Hourly Emissions	lb/hour	3.3896	0.5084
Daily Emissions	lb/day	81.35	12.20
Annual Emissions	ton/yr	0.43	0.06
Landfill Area Disturbed Area			
Hourly Emissions	lb/hour	1.61	0.24
Daily Emissions	lb/day	38.74	5.81
Annual Emissions	ton/yr	0.20	0.03
Landfill Area Undisturbed Area			
Hourly Emissions	lb/hour	5.65	0.85
Daily Emissions	lb/day	135.59	20.34
Annual Emissions	ton/yr	0.71	0.11

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) 3 acres disturbed in Borrow Area A is from current year activity. 6 acres undisturbed, unvegetated area in Borrow Area A is from prior year activity of using Stockpile Area A soil. Stockpile Area A is used approximately over 4 years for a use of 6 acres per year. 6 acres undisturbed, unvegetated area in Borrow Area B is from prior year activity, 6 acres disturbed area in Borrow Area A is from current year activity. Borrow Area B is used over a period of approximately 10-11 years, for an approximate acreage of 6 acres per year. 2 acres disturbed area in the landfill is the active area of the landfill. The landfill is used over 30 years for an approximate acreage of 6 acres per year. 14 acres undisturbed, unvegetated area is 6 acres from the prior year plus 4 acres of the current year that is not actively being used.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, k($PM_{2.5}$) = 0.2 and k(PM_{10}) = 0.5. In the 11/2006 version, k($PM_{2.5}$) = 0.075 and k(PM_{10}) = 0.5.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

Hourly Emissions for Closing Year
Pounds per Hour (lb/hr)

Closing Year	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Unstabilized Main Road (1)	Borrow Area A Haul Road (1)	Final Cover Haul Road (1)	Excavation at BAA	Final Cover Loading at BAA	Final Cover Spreading	Final Cover Compaction	Wind Erosion (BAA Disturbed)	Wind Erosion (BAB Undisturbed)	Wind Erosion (Landfill Disturbed)	Flares	Landfill Gas Fugitive	Total (lbs/hr)
Fugitive PM_{10}	0.22	0.33	0.83	7.07	9.25	1.41	2.45	0.57	1.20	17.76	3.39	147.69	1.57		193.75
Exhaust PM_{10}		0.00	0.02	0.24	0.32	0.06	0.00	0.07	0.06						0.78
Total PM_{10}	0.22	0.33	0.85	7.31	9.57	1.48	2.45	0.64	1.27	17.76	3.39	147.69	1.57		194.52
Fugitive $PM_{2.5}$	0.10	0.09	0.19	1.58	2.04	0.21	0.37	0.09	0.18	2.66	0.51	22.15	1.57		31.74
Exhaust $PM_{2.5}$		0.00	0.02	0.24	0.32	0.06	0.00	0.07	0.06						0.78
Total $PM_{2.5}$	0.10	0.09	0.21	1.81	2.36	0.28	0.37	0.15	0.24	2.66	0.51	22.15	1.57		32.52
VOC		0.00	0.03	0.46	0.64	0.13	0.01	0.13	0.13				0.84	2.20	4.56
CO		0.00	0.22	4.00	5.52	1.10	0.07	1.14	1.10				0.24	0.17	13.56
NOx		0.00	0.39	7.26	10.01	2.00	0.12	2.07	2.00				4.72		28.58
SOx		0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00				2.31		2.33
TACs															
Arsenic	4.348E-06	6.55E-06	1.67E-05	1.41E-04	1.85E-04	2.82E-05	4.90E-05	1.14E-05	2.41E-05	3.55E-04	6.78E-05	2.95E-03			3.843E-03
Beryllium	2.174E-07	3.27E-07	8.33E-07	7.07E-06	9.25E-06	1.41E-06	2.45E-06	5.72E-07	1.20E-06	1.78E-05	3.39E-06	1.48E-04			1.922E-04
Cadmium	2.174E-07	3.27E-07	8.33E-07	7.07E-06	9.25E-06	1.41E-06	2.45E-06	5.72E-07	1.20E-06	1.78E-05	3.39E-06	1.48E-04			1.922E-04
Chromium (total)	1.087E-05	1.64E-05	4.16E-05	3.54E-04	4.62E-04	7.06E-05	1.22E-04	2.86E-05	6.01E-05	8.88E-04	1.69E-04	7.38E-03			9.609E-03
Copper	2.174E-05	3.27E-05	8.33E-05	7.07E-04	9.25E-04	1.41E-04	2.45E-04	5.72E-05	1.20E-04	1.78E-03	3.39E-04	1.48E-02			1.922E-02
Lead	1.087E-05	1.64E-05	4.16E-05	3.54E-04	4.62E-04	7.06E-05	1.22E-04	2.86E-05	6.01E-05	8.88E-04	1.69E-04	7.38E-03			9.609E-03
Manganese	1.087E-04	1.64E-04	4.16E-04	3.54E-03	4.62E-03	7.06E-04	1.22E-03	2.86E-04	6.01E-04	8.88E-03	1.69E-03	7.38E-02			9.609E-02
Mercury	1.087E-06	1.64E-06	4.16E-06	3.54E-05	4.62E-05	7.06E-06	1.22E-05	2.86E-06	6.01E-06	8.88E-05	1.69E-05	7.38E-04	8.364E-07	4.40E-06	9.661E-04
Nickel	4.348E-06	6.55E-06	1.67E-05	1.41E-04	1.85E-04	2.82E-05	4.90E-05	1.14E-05	2.41E-05	3.55E-04	6.78E-05	2.95E-03			3.843E-03
Selenium	1.087E-06	1.64E-06	4.16E-06	3.54E-05	4.62E-05	7.06E-06	1.22E-05	2.86E-06	6.01E-06	8.88E-05	1.69E-05	7.38E-04			9.609E-04
Silica (crystalline)	2.174E-02	3.27E-02	8.33E-02	7.07E-01	9.25E-01	1.41E-01	2.45E-01	5.72E-02	1.20E-01	1.78E+00	3.39E-01	1.48E+01			1.922E+01
Zinc	4.348E-05	6.55E-05	1.67E-04	1.41E-03	1.85E-03	2.82E-04	4.90E-04	1.14E-04	2.41E-04	3.55E-03	6.78E-04	2.95E-02			3.843E-02
Acetone		0.00E+00		0.00E+00	4.49E-01								3.32E-03	1.75E-02	4.702E-01
Acrylonitrile													2.38E-04	1.25E-03	1.493E-03
Benzene													1.22E-03	6.41E-03	7.630E-03
Carbon disulfide													3.61E-04	1.90E-03	2.258E-03
Carbonyl sulfide													2.40E-04	1.27E-03	1.505E-03
Carbon Tetrachloride													5.02E-06	2.64E-05	3.147E-05
Chlorobenzene													2.30E-04	1.21E-03	1.439E-03
Chlorodifluoromethane													9.18E-04	4.83E-03	5.749E-03
Chloroethane (ethyl chloride)													6.59E-04	3.47E-03	4.125E-03
Chloroform													2.92E-05	1.54E-04	1.832E-04
1,4-Dichlorobenzene													2.52E-04	1.33E-03	1.579E-03
Diesel Exhaust PM		1.926E-04	1.848E-02	2.368E-01	3.249E-01	6.377E-02	3.891E-03	6.615E-02	6.377E-02						7.780E-01
Ethyl benzene													4.00E-03	2.10E-02	2.503E-02
Ethylene dichloride (1,2-Dichloroethane)													3.31E-04	1.74E-03	2.075E-03
Ethylidene dichloride (1,1-Dichloroethane)													1.90E-03	1.00E-02	1.189E-02
Fluorotrichloromethane (Chlorofluorocarbons)													9.18E-04	4.83E-03	5.749E-03
Formaldehyde													4.25E-02		4.246E-02
Hexane													4.62E-03	2.43E-02	2.896E-02
Hydrogen chloride													2.34E+00		2.337E+00
Hydrogen sulfide													9.88E-03	5.20E-02	6.188E-02
Isopropyl alcohol (2-propanol)													2.46E-02	1.29E-01	1.540E-01
Methyl chloroform													5.23E-04	2.75E-03	3.275E-03
Methylene chloride													9.92E-03	5.22E-02	6.212E-02
Methyl ethyl ketone													4.17E-03	2.20E-02	2.614E-02
Perchloro-ethylene													5.05E-03	2.66E-02	3.163E-02
Propylene dichloride (1,2-dichloropropane)													1.66E-04	8.74E-04	1.040E-03
1,1,2,2-tetrachloroethane													1.52E-03	8.01E-03	9.529E-03
Toluene													2.96E-02	1.56E-01	1.852E-01
Trichloroethylene													3.02E-03	1.59E-02	1.891E-02
Vinyl acetate		0.00E+00		0.00E+00	9.40E-01										9.397E-01
Vinyl chloride													3.75E-03	1.97E-02	2.346E-02
Vinylidene chloride (1,1-dichloroethene)													1.58E-04	8.33E-04	9.916E-04
Xylenes													1.05E-02	5.52E-02	6.570E-02
PAHs w/o Napthalene													3.90E-04		3.900E-04
Napthalene													5.54E-05		5.535E-05
Dioxins & Furans													3.74E-21		3.743E-21
Total TAC	2.19E-02	3.33E-02	1.03E-01	9.51E-01	2.65E+00	2.06E-01	2.51E-01	1.24E-01	1.85E-01	1.79E+00	3.42E-01	1.49E+01	2.50E+00	6.42E-01	2.47E+01

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Daily Emissions for Closing Year
Pounds per day (lb/day)

Closing Year	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Unstabilized Main Road (1)	Borrow Area A Haul Road (1)	Final Cover Haul Road (1)	Excavation at BAA	Final Cover Loading at BAA	Final Cover Spreading	Final Cover Compaction	Wind Erosion (BAA Disturbed)	Wind Erosion (BAB Undisturbed)	Wind Erosion (Landfill Disturbed)	Flares	Landfill Gas Fugitive	Total (lbs/day)
Fugitive PM_{10}	2.39	3.60	7.69	59.03	75.47	15.53	26.95	6.29	13.23	426.13	81.35	3,544.59	37.74		4,300.00
Exhaust PM_{10}		0.00	0.02	2.44	3.41	0.70	0.04	0.73	0.70						8.04
Total PM_{10}	2.39	3.60	7.71	61.48	78.88	16.24	26.99	7.02	13.93	426.13	81.35	3,544.59	37.74		4,308.05
Fugitive $PM_{2.5}$	1.09	0.95	1.98	15.27	19.49	2.33	4.04	0.94	1.98	63.92	12.20	531.69	37.74		693.63
Exhaust $PM_{2.5}$		0.00	0.02	2.44	3.41	0.70	0.04	0.73	0.70						8.04
Total $PM_{2.5}$	1.09	0.95	2.00	17.71	22.90	3.03	4.08	1.67	2.69	63.92	12.20	531.69	37.74		701.68
VOC		0.00	0.03	4.88	6.80	1.40	0.09	1.46	1.40				20.08	52.88	89.02
CO		0.00	0.22	42.11	58.75	12.11	0.74	12.56	12.11				5.66	4.07	148.34
NOx		0.00	0.39	76.42	106.61	21.98	1.34	22.80	21.98				113.22		364.74
SOx		0.00	0.00	0.08	0.11	0.02	0.00	0.02	0.02				55.40		55.66
TACs (lbs/day)															
Diesel Exhaust PM		1.926E-04	1.848E-02	2.444E+00	3.408E+00	7.014E-01	4.280E-02	7.276E-01	7.014E-01						8.044E+00

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

Annual Emissions for Closing Year
Tons per Year (ton/yr); TACS (lbs/yr)

Closing Year	Paved Main Road	Unpaved Stabilized Main Road (1)	Unpaved Unstabilized Main Road (1)	Borrow Area A Haul Road (1)	Final Cover Haul Road (1)	Excavation at BAA	Final Cover Loading at BAA	Final Cover Spreading	Final Cover Compaction	Wind Erosion (BAA Disturbed)	Wind Erosion (BAB Undisturbed)	Wind Erosion (Landfill Disturbed)	Flares	Landfill Gas Fugitive	Total (ton/yr)
Fugitive PM_{10}	0.37	0.55	1.18	8.78	11.19	2.38	4.14	0.97	2.03	2.23	0.43	18.53	6.89		59.66
Exhaust PM_{10}		0.00	0.00	0.38	0.52	0.11	0.01	0.11	0.11						1.23
Total PM_{10}	0.37	0.55	1.18	9.15	11.72	2.49	4.14	1.08	2.14	2.23	0.43	18.53	6.89		60.90
Fugitive $PM_{2.5}$	0.00	0.15	0.30	2.31	2.95	0.36	0.62	0.14	0.30	0.33	0.06	2.78	6.89		17.20
Exhaust $PM_{2.5}$		0.00	0.00	0.38	0.52	0.11	0.01	0.11	0.11						1.23
Total $PM_{2.5}$	0.00	0.15	0.31	2.68	3.47	0.47	0.63	0.26	0.41	0.33	0.06	2.78	6.89		18.43
VOC		0.00	0.00	0.75	1.04	0.22	0.01	0.22	0.22				3.66	9.65	15.78
CO		0.03	0.00	6.46	9.02	1.86	0.11	1.93	1.86				1.03	0.74	23.05
NOx		0.06	0.00	11.73	16.36	3.37	0.21	3.50	3.37				20.66		59.27
SOx		0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00				10.11		10.15
TACs (lbs/yr)															
Arsenic	7.34E-06	1.11E-05	2.36E-05	1.76E-04	2.24E-04	4.77E-05	8.27E-05	1.93E-05	4.06E-05	4.46E-05	8.51E-06	3.71E-04			1.056E-03
Beryllium	3.67E-07	5.53E-07	1.18E-06	8.78E-06	1.12E-05	2.38E-06	4.14E-06	9.66E-07	2.03E-06	2.23E-06	4.25E-07	1.85E-05			5.278E-05
Cadmium	3.67E-07	5.53E-07	1.18E-06	8.78E-06	1.12E-05	2.38E-06	4.14E-06	9.66E-07	2.03E-06	2.23E-06	4.25E-07	1.85E-05			5.278E-05
Chromium (total)	1.84E-05	2.77E-05	5.90E-05	4.39E-04	5.60E-04	1.19E-04	2.07E-04	4.83E-05	1.02E-04	1.11E-04	2.13E-05	9.27E-04			2.639E-03
Copper	3.67E-05	5.53E-05	1.18E-04	8.78E-04	1.12E-03	2.38E-04	4.14E-04	9.66E-05	2.03E-04	2.23E-04	4.25E-05	1.85E-03			5.278E-03
Lead	1.84E-05	2.77E-05	5.90E-05	4.39E-04	5.60E-04	1.19E-04	2.07E-04	4.83E-05	1.02E-04	1.11E-04	2.13E-05	9.27E-04			2.639E-03
Manganese	1.84E-04	2.77E-04	5.90E-04	4.39E-03	5.60E-03	1.19E-03	2.07E-03	4.83E-04	1.02E-03	1.11E-03	2.13E-04	9.27E-03			2.639E-02
Mercury	1.84E-06	2.77E-06	5.90E-06	4.39E-05	5.60E-05	1.19E-05	2.07E-05	4.83E-06	1.02E-05	1.11E-05	2.13E-06	9.27E-05	7.33E-03	3.86E-02	4.615E-02
Nickel	7.34E-06	1.11E-05	2.36E-05	1.76E-04	2.24E-04	4.77E-05	8.27E-05	1.93E-05	4.06E-05	4.46E-05	8.51E-06	3.71E-04			1.056E-03
Selenium	1.84E-06	2.77E-06	5.90E-06	4.39E-05	5.60E-05	1.19E-05	2.07E-05	4.83E-06	1.02E-05	1.11E-05	2.13E-06	9.27E-05			2.639E-04
Silica (crystalline)	3.67E-02	5.53E-02	1.18E-01	8.78E-01	1.12E+00	2.38E-01	4.14E-01	9.66E-02	2.03E-01	2.23E-01	4.25E-02	1.85E+00			5.278E+00
Zinc	7.34E-05	1.11E-04	2.36E-04	1.76E-03	2.24E-03	4.77E-04	8.27E-04	1.93E-04	4.06E-04	4.46E-04	8.51E-05	3.71E-03			1.056E-02
Acetone		1.17E+00		3.96E+00	1.41E+01								2.91E+01	1.53E+02	2.017E+02
Acrylonitrile													2.09E+00	1.10E+01	1.307E+01
Benzene													1.07E+01	5.62E+01	6.684E+01
Carbon disulfide													3.16E+00	1.66E+01	1.978E+01
Carbonyl sulfide													2.11E+00	1.11E+01	1.319E+01
Carbon Tetrachloride													4.40E-02	2.32E-01	2.757E-01
Chlorobenzene													2.01E+00	1.06E+01	1.261E+01
Chlorodifluoromethane													8.04E+00	4.23E+01	5.036E+01
Chloroethane (ethyl chloride)													5.77E+00	3.04E+01	3.613E+01
Chloroform													2.56E-01	1.35E+00	1.605E+00
1,4-Dichlorobenzene													2.21E+00	1.16E+01	1.383E+01
Diesel Exhaust PM		5.913E-02	5.673E+00	7.503E+02	1.046E+03	2.153E+02	1.314E+01	2.234E+02	2.153E+02						2.469E+03
Ethyl benzene													3.50E+01	1.84E+02	2.193E+02
Ethylene dichloride (1,2-Dichloroethane)													2.90E+00	1.53E+01	1.818E+01
Ethylidene dichloride (1,1-Dichloroethane)													1.66E+01	8.76E+01	1.042E+02
Fluorotrichloromethane (Chlorofluorocarbons)													8.04E+00	4.23E+01	5.036E+01
Formaldehyde													3.72E+02		3.719E+02
Hexane													4.05E+01	2.13E+02	2.537E+02
Hydrogen chloride													2.05E+04		2.047E+04
Hydrogen sulfide													8.65E+01	4.55E+02	5.420E+02
Isopropyl alcohol (2-propanol)													2.15E+02	1.13E+03	1.349E+03
Methyl chloroform													4.58E+00	2.41E+01	2.869E+01
Methylene chloride													8.69E+01	4.57E+02	5.442E+02
Methyl ethyl ketone													3.66E+01	1.92E+02	2.290E+02
Perchloro-ethylene													4.42E+01	2.33E+02	2.771E+02
Propylene dichloride (1,2-dichloropropane)													1.45E+00	7.66E+00	9.112E+00
1,1,2,2-tetrachloroethane													1.33E+01	7.01E+01	8.347E+01
Toluene													2.59E+02	1.36E+03	1.622E+03
Trichloroethylene													2.65E+01	1.39E+02	1.657E+02
Vinyl acetate		2.45E+00		8.28E+00	2.95E+01										4.027E+01
Vinyl chloride													3.28E+01	1.73E+02	2.055E+02
Vinylidene chloride (1,1-dichloroethene)													1.39E+00	7.30E+00	8.686E+00
Xylenes													9.19E+01	4.84E+02	5.755E+02
PAHs w/o Napthalene													3.42E+00		3.416E+00
Napthalene													4.85E-01		4.849E-01
Dioxins & Furans													3.28E-17		3.278E-17
Total TAC	3.71E-02	3.74E+00	5.79E+00	7.63E+02	1.09E+03	2.16E+02	1.36E+01	2.23E+02	2.16E+02	2.25E-01	4.29E-02	1.87E+00	2.19E+04	5.63E+03	3.01E+04

Note: 1. Unpaved Road Emissions are from vehicle travel and road grading.

GCLF Toxics Emissions from Fugitive Landfill Gas and Flares for Closing Year

Closing Year LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.315
Max. Daily Flared LFG	MM ft^3/day	7.548
Max. Yearly Flared LFG	MM ft^3/yr	2,755.04
Hours of Operation	hours/day	24
Number of Flares		6
Max. Hourly Fugitive LFG	MM ft^3/hr	0.017
Max. Daily Fugitive LFG	MM ft^3/day	0.397
Max. Yearly Fugitive LFG	MM ft^3/yr	145.00

Closing Year Toxic Emissions From Fugitive Landfill Gas

Toxic Pollutant	CAS	EF (ppmv)[1]	MW (lb/mol)	Fugitive LFG Hourly Toxic Emissions (lb/hr)	Fugitive LFG Daily Toxic Emissions (lb/day)	Fugitive LFG Annual Toxic Emissions (lb/yr)
Acetone	67-64-1	7.01	58.08	1.75E-02	4.20E-01	1.53E+02
Acrylonitrile	107-13-1	0.55	53.06	1.25E-03	3.01E-02	1.10E+01
Benzene	71-43-2	1.91	78.11	6.41E-03	1.54E-01	5.62E+01
Carbon disulfide	75-15-0	0.58	76.13	1.90E-03	4.55E-02	1.66E+01
Carbonyl sulfide	463-58-1	0.49	60.07	1.27E-03	3.04E-02	1.11E+01
Carbon Tetrachloride	56-23-5	0.004	153.82	2.64E-05	6.35E-04	2.32E-01
Chloro-benzene	108-90-7	0.25	112.56	1.21E-03	2.90E-02	1.06E+01
Chlorodifluoromethane	75-45-6	1.3	86.47	4.83E-03	1.16E-01	4.23E+01
Chloroethane (ethyl chloride)	75-00-3	1.25	64.52	3.47E-03	8.32E-02	3.04E+01
Chloroform	67-66-3	0.03	119.39	1.54E-04	3.69E-03	1.35E+00
1,4-Dichlorobenzene	106-46-7	0.21	147	1.33E-03	3.18E-02	1.16E+01
Ethyl benzene	100-41-4	4.61	106.16	2.10E-02	5.05E-01	1.84E+02
Ethylene dichloride (1,2-Dichloroethane)	107-06-2	0.41	98.96	1.74E-03	4.18E-02	1.53E+01
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	2.35	98.97	1.00E-02	2.40E-01	8.76E+01
Fluorotrichloromethane (Chlorofluorocarbons)	75-69-4	1.30	86.47	4.83E-03	1.16E-01	4.23E+01
Hexane	110-54-3	6.57	86.18	2.43E-02	5.84E-01	2.13E+02
Hydrogen sulfide	7783-06-4	35.50	34.08	5.20E-02	1.25E+00	4.55E+02
Isopropyl alcohol (2-propanol)	67-63-0	50.10	60.10	1.29E-01	3.11E+00	1.13E+03
Mercury	7439-97-6	2.92E-04	350.77	4.40E-06	1.06E-04	3.86E-02
Methyl chloroform (1,1,1-Trichloroethane)	71-55-6	0.48	133.41	2.75E-03	6.61E-02	2.41E+01
Methylene chloride (Dichloromethane)	75-09-2	14.30	84.94	5.22E-02	1.25E+00	4.57E+02
Methyl ethyl ketone	78-93-3	7.09	72.10	2.20E-02	5.27E-01	1.92E+02
Perchloroethylene (Tetrachloroethylene)	127-18-4	3.73	165.83	2.66E-02	6.38E-01	2.33E+02
Propylene dichloride (1,2-dichloropropane)	78-87-5	0.18	112.99	8.74E-04	2.10E-02	7.66E+00
1,1,2,2-tetrachloroethane	79-34-5	1.11	167.85	8.01E-03	1.92E-01	7.01E+01
Toluene	108-88-3	39.30	92.13	1.56E-01	3.73E+00	1.36E+03
Trichloroethylene	79-01-6	2.82	131.14	1.59E-02	3.81E-01	1.39E+02
Vinyl chloride	75-01-4	7.34	62.50	1.97E-02	4.73E-01	1.73E+02
Vinylidene chloride (1,1-dichloroethene)	75-35-4	0.20	96.94	8.33E-04	2.00E-02	7.30E+00
Xylenes	1330-20-7	12.10	106.16	5.52E-02	1.32E+00	4.84E+02
Diesel Exhaust PM				0.00E+00	0.00E+00	0.00E+00

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998. The emission factor for chlorofluorocarbons was obtained from SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99 and is assumed to incorporate fluorotrichloromethane with an EF of 0.76 ppmv in AP-42 Table 2.4-1. Emission factor for acrylonitrile provided by Mr. David Byrnes of the SDAPCD during a meeting with GCL in November 2003 (SDAPCD, 2003).

2. Emission factors are calculated based on the standard default of 385.15 standard cubic feet per pound mole.

GCLF Toxics Emissions from Fugitive Landfill Gas and Flares for Closing Year

Closing Year Toxic Emissions From Flares Only

Toxic Emissions From Flares Only	CAS	EF (lb/MM ft^3)	Flare Hourly Toxic Emissions (lb/hr)	Flare Daily Toxic Emissions (lb/day)	Flare Annual Toxic Emissions (lb/yr)
Acetone	67-64-1	0.0106	3.32E-03	7.98E-02	2.91E+01
Acrylonitrile	107-13-1	0.0008	2.38E-04	5.72E-03	2.09E+00
Benzene	71-43-2	0.0039	1.22E-03	2.92E-02	1.07E+01
Carbon disulfide	75-15-0	0.0011	3.61E-04	8.65E-03	3.16E+00
Carbonyl sulfide	463-58-1	0.0008	2.40E-04	5.77E-03	2.11E+00
Carbon Tetrachloride	56-23-5	0.0000	5.02E-06	1.21E-04	4.40E-02
Chlorobenzene	108-90-7	0.0007	2.30E-04	5.51E-03	2.01E+00
Chlorodifluoromethane	75-45-6	0.0029	9.18E-04	2.20E-02	8.04E+00
Chloroethane (ethyl chloride)	75-00-3	0.0021	6.59E-04	1.58E-02	5.77E+00
Chloroform	67-66-3	0.0001	2.92E-05	7.02E-04	2.56E-01
1,4-Dichlorobenzene	106-46-7	0.0008	2.52E-04	6.05E-03	2.21E+00
Ethyl benzene	100-41-4	0.0127	4.00E-03	9.59E-02	3.50E+01
Ethylene dichloride (1,2-Dichloroethane)	107-06-2	0.0011	3.31E-04	7.95E-03	2.90E+00
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	0.0060	1.90E-03	4.56E-02	1.66E+01
Fluorotrichloromethane (Chlorofluorocarbons)	75-45-8	0.0029	9.18E-04	2.20E-02	8.04E+00
Formaldehyde	50-00-0	0.1350	4.25E-02	1.02E+00	3.72E+02
Hexane	110-54-3	0.0147	4.62E-03	1.11E-01	4.05E+01
Hydrogen chloride[2]	7647-01-0	7.4300	2.34E+00	5.61E+01	2.05E+04
Hydrogen sulfide	7783-06-4	0.0314	9.88E-03	2.37E-01	8.65E+01
Isopropyl alcohol (2-propanol)	67-63-0	0.0782	2.46E-02	5.90E-01	2.15E+02
Mercury	7439-97-6	2.66E-06	8.36E-07	2.01E-05	7.33E-03
Methyl chloroform	71-55-6	0.0017	5.23E-04	1.25E-02	4.58E+00
Methylene chloride	75-09-2	0.0315	9.92E-03	2.38E-01	8.69E+01
Methyl ethyl ketone	78-93-3	0.0133	4.17E-03	1.00E-01	3.66E+01
Perchloro-ethylene	127-18-4	0.0161	5.05E-03	1.21E-01	4.42E+01
Propylene dichloride (1,2-dichloropropane)	78-87-5	0.0005	1.66E-04	3.99E-03	1.45E+00
1,1,2,2-tetrachloroethane	79-34-5	0.0048	1.52E-03	3.65E-02	1.33E+01
Toluene	108-88-3	0.0940	2.96E-02	7.10E-01	2.59E+02
Trichloroethylene	79-01-6	0.0096	3.02E-03	7.25E-02	2.65E+01
Vinyl chloride	75-01-4	0.0119	3.75E-03	8.99E-02	3.28E+01
Vinylidene chloride (1,1-dichloroethene)	75-35-4	0.0005	1.58E-04	3.80E-03	1.39E+00
Xylenes	1330-20-7	0.0334	1.05E-02	2.52E-01	9.19E+01
PAHs w/o Napthalene	1151	0.0012	3.90E-04	9.36E-03	3.42E+00
Napthalene	91-20-3	0.0002	5.54E-05	1.33E-03	4.85E-01
Dioxins & Furans	1086	1.19E-20	3.74E-21	8.98E-20	3.28E-17

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998, assuming 99% destruction removal efficiency (DRE). The emission factor for chlorofluorocarbons was obtained from SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99 and is assumed to incorporate fluorotrichloromethane with an EF of 0.76 ppmv in AP-42 Table 2.4-1, then assumes 99% DRE. Emission factors for formaldehyde and hydrochloric acid were obtained from SDAPCD Calculation Method L04 - Landfill Gas Default Composition, dated 8/24/99, where formaldehyde is based on EPA VOC speciation profile #1001, 1/90 and HCL is based on AP-42 raw landfill gas content with a 98% DRE.

2. Emissions are assumed to be controlled by the flare at 99% DRE, with the exception of HCL, where 98% DRE is assumed.

Closing Year Annual & Hourly Solitac (Sealer Application) Product Toxic Emissions (lb/yr & lb/hr)

									Toxic Emissions, CAS number, EF (ppmw)			
									Annual Emission (lb/yr)		Hourly Emission (lb/hr)	
									Acetone	Vinyl Acetate	Acetone	Vinyl Acetate
									67-64-1	108-05-4	67-64-1	108-05-4
Source	**One-Way Road Length (ft)**	**Road Width (ft)**	**Road Area (ft^2)**	**Soiltac Application for Mix-In (gal/ft^2 rd)**	**Soiltac Application for Quarterly Sealant (gal/ft^2 rd)**	**Total Soiltac Usage (gal/yr)**	**Days of Application**	**EF (mg/L)**	**110**	**230**	**110**	**230**
Unpaved Stabilized Main Road (Quarterly Sealant)	800	40	32,000		0.01	1,280			1.17E+00	2.45E+00		
Borrow Area A Haul Road (Quarterly Sealant)	5,400	20	108,000		0.01	4,320			3.96E+00	8.28E+00		
Final Cover Haul Road (Initial Mix-In)	7,700	20	154,000	0.07		10,780	2		9.89E+00	2.07E+01	4.49E-01	9.40E-01
Final Cover Haul Road (Quarterly Sealant)	7,700	20	154,000		0.01	4,620			4.24E+00	8.86E+00		
Total									1.93E+01	4.03E+01	4.49E-01	9.40E-01

1) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for Closing Year as placed on an aerial overlay of the landfill area.

2) Soiltac application rate data (undiluted quantity) as provided by the manufacturer.

3) Initial mix-in of Soiltac road stabilizer is assumed to have occurred in a previous year for the main stabilized road and borrow area A stabilized road. Sealant is applied quarterly (4 times in Closing Year). The hourly emissions are based on mix-in of the road stabilizer on the final cover road, as product application rates are higher for mix-in (quarterly sealing will occur on different days).

4) Toxic emission factors as defined by a Solitac product test in 2004. According to the manufacturer, the product was contaminated by a residual product from another manufacturer when samples were collected from the tanker truck. The manufacturer performed more recent testing in 2010, where the product was taken directly from the manufacturing facility in glass bottles and VOCs, including acetone and vinyl acetate, were non-detect during lab testing.

Closing Year Hourly Particulate Matter Based Toxic Emissions (lb/hr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	9901
Source	**PM10 (lb/hr)**	**EF (ppmw)**	**20**	**1**	**1**	**50**	**100**	**50**	**500**	**5**	**20**	**5**	**100000**	**200**	**--**
Paved Main Road	0.217		4.35E-06	2.17E-07	2.17E-07	1.09E-05	2.17E-05	1.09E-05	1.09E-04	1.09E-06	4.35E-06	1.09E-06	2.17E-02	4.35E-05	0.00E+00
Unpaved Stabilized Main Road	0.327		6.55E-06	3.27E-07	3.27E-07	1.64E-05	3.27E-05	1.64E-05	1.64E-04	1.64E-06	6.55E-06	1.64E-06	3.27E-02	6.55E-05	1.93E-04
Unpaved Unstabilized Main Road	0.833		1.67E-05	8.33E-07	8.33E-07	4.16E-05	8.33E-05	4.16E-05	4.16E-04	4.16E-06	1.67E-05	4.16E-06	8.33E-02	1.67E-04	1.85E-02
Borrow Area A Haul Road	5.124		1.02E-04	5.12E-06	5.12E-06	2.56E-04	5.12E-04	2.56E-04	2.56E-03	2.56E-05	1.02E-04	2.56E-05	5.12E-01	1.02E-03	2.07E-01
Borrow Area A Haul Road Ends	1.949		3.90E-05	1.95E-06	1.95E-06	9.75E-05	1.95E-04	9.75E-05	9.75E-04	9.75E-06	3.90E-05	9.75E-06	1.95E-01	3.90E-04	3.00E-02
Final Cover Haul Road	7.300		1.46E-04	7.30E-06	7.30E-06	3.65E-04	7.30E-04	3.65E-04	3.65E-03	3.65E-05	1.46E-04	3.65E-05	7.30E-01	1.46E-03	2.95E-01
Final Cover Haul Road Ends	1.949		3.90E-05	1.95E-06	1.95E-06	9.75E-05	1.95E-04	9.75E-05	9.75E-04	9.75E-06	3.90E-05	9.75E-06	1.95E-01	3.90E-04	3.00E-02
Excavation at BAA	1.412		2.82E-05	1.41E-06	1.41E-06	7.06E-05	1.41E-04	7.06E-05	7.06E-04	7.06E-06	2.82E-05	7.06E-06	1.41E-01	2.82E-04	6.38E-02
Final Cover Loading at BAA	2.45		4.90E-05	2.45E-06	2.45E-06	1.22E-04	2.45E-04	1.22E-04	1.22E-03	1.22E-05	4.90E-05	1.22E-05	2.45E-01	4.90E-04	3.89E-03
Final Cover Spreading	0.57		1.14E-05	5.72E-07	5.72E-07	2.86E-05	5.72E-05	2.86E-05	2.86E-04	2.86E-06	1.14E-05	2.86E-06	5.72E-02	1.14E-04	6.61E-02
Final Cover Compaction	1.20		2.41E-05	1.20E-06	1.20E-06	6.01E-05	1.20E-04	6.01E-05	6.01E-04	6.01E-06	2.41E-05	6.01E-06	1.20E-01	2.41E-04	6.38E-02
Wind Erosion (BAA Disturbed)	17.76		3.55E-04	1.78E-05	1.78E-05	8.88E-04	1.78E-03	8.88E-04	8.88E-03	8.88E-05	3.55E-04	8.88E-05	1.78E+00	3.55E-03	0.00E+00
Wind Erosion (BAB Undisturbed)	3.39		6.78E-05	3.39E-06	3.39E-06	1.69E-04	3.39E-04	1.69E-04	1.69E-03	1.69E-05	6.78E-05	1.69E-05	3.39E-01	6.78E-04	0.00E+00
Wind Erosion (Landfill Disturbed)	147.69		2.95E-03	1.48E-04	1.48E-04	7.38E-03	1.48E-02	7.38E-03	7.38E-02	7.38E-04	2.95E-03	7.38E-04	1.48E+01	2.95E-02	0.00E+00
Total Hourly (lb/hr)			3.84E-03	1.92E-04	1.92E-04	9.61E-03	1.92E-02	9.61E-03	9.61E-02	9.61E-04	3.84E-03	9.61E-04	1.92E+01	3.84E-02	7.78E-01

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

Closing Year Annual Particulate Matter Based Toxic Emissions (lb/yr)

			Toxic Emissions, CAS number, EF (ppmw)												
			Arsenic	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Silica (crystalline)	Zinc	Diesel Exhaust PM
			7440-38-2	7440-41-7	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-96-5	7439-97-6	7440-02-0	7782-49-2	1175	7440-66-6	--
Source	**PM10 (lb/yr)**	**EF (ppmw)**	**20**	**1**	**1**	**50**	**100**	**50**	**500**	**5**	**20**	**5**	**100000**	**200**	**--**
Paved Main Road	0.367		7.34E-06	3.67E-07	3.67E-07	1.84E-05	3.67E-05	1.84E-05	1.84E-04	1.84E-06	7.34E-06	1.84E-06	3.67E-02	7.34E-05	0.00E+00
Unpaved Stabilized Main Road	0.553		1.11E-05	5.53E-07	5.53E-07	2.77E-05	5.53E-05	2.77E-05	2.77E-04	2.77E-06	1.11E-05	2.77E-06	5.53E-02	1.11E-04	5.91E-02
Unpaved Unstabilized Main Road	1.181		2.36E-05	1.18E-06	1.18E-06	5.90E-05	1.18E-04	5.90E-05	5.90E-04	5.90E-06	2.36E-05	5.90E-06	1.18E-01	2.36E-04	5.67E+00
Borrow Area A Haul Road	5.663		1.13E-04	5.66E-06	5.66E-06	2.83E-04	5.66E-04	2.83E-04	2.83E-03	2.83E-05	1.13E-04	2.83E-05	5.66E-01	1.13E-03	6.94E+02
Borrow Area A Haul Road Ends	3.115		6.23E-05	3.11E-06	3.11E-06	1.56E-04	3.11E-04	1.56E-04	1.56E-03	1.56E-05	6.23E-05	1.56E-05	3.11E-01	6.23E-04	5.59E+01
Final Cover Haul Road	8.075		1.61E-04	8.07E-06	8.07E-06	4.04E-04	8.07E-04	4.04E-04	4.04E-03	4.04E-05	1.61E-04	4.04E-05	8.07E-01	1.61E-03	9.90E+02
Final Cover Haul Road Ends	3.120		6.24E-05	3.12E-06	3.12E-06	1.56E-04	3.12E-04	1.56E-04	1.56E-03	1.56E-05	6.24E-05	1.56E-05	3.12E-01	6.24E-04	5.60E+01
Excavation at BAA	2.384		4.77E-05	2.38E-06	2.38E-06	1.19E-04	2.38E-04	1.19E-04	1.19E-03	1.19E-05	4.77E-05	1.19E-05	2.38E-01	4.77E-04	2.15E+02
Final Cover Loading at BAA	4.14		8.27E-05	4.14E-06	4.14E-06	2.07E-04	4.14E-04	2.07E-04	2.07E-03	2.07E-05	8.27E-05	2.07E-05	4.14E-01	8.27E-04	1.31E+01
Final Cover Spreading	0.97		1.93E-05	9.66E-07	9.66E-07	4.83E-05	9.66E-05	4.83E-05	4.83E-04	4.83E-06	1.93E-05	4.83E-06	9.66E-02	1.93E-04	2.23E+02
Final Cover Compaction	2.03		4.06E-05	2.03E-06	2.03E-06	1.02E-04	2.03E-04	1.02E-04	1.02E-03	1.02E-05	4.06E-05	1.02E-05	2.03E-01	4.06E-04	2.15E+02
Wind Erosion (BAA Disturbed)	2.23		4.46E-05	2.23E-06	2.23E-06	1.11E-04	2.23E-04	1.11E-04	1.11E-03	1.11E-05	4.46E-05	1.11E-05	2.23E-01	4.46E-04	0.00E+00
Wind Erosion (BAB Undisturbed)	0.43		8.51E-06	4.25E-07	4.25E-07	2.13E-05	4.25E-05	2.13E-05	2.13E-04	2.13E-06	8.51E-06	2.13E-06	4.25E-02	8.51E-05	0.00E+00
Wind Erosion (Landfill Disturbed)	18.53		3.71E-04	1.85E-05	1.85E-05	9.27E-04	1.85E-03	9.27E-04	9.27E-03	9.27E-05	3.71E-04	9.27E-05	1.85E+00	3.71E-03	0.00E+00
Total Annual (lb/yr)			1.06E-03	5.28E-05	5.28E-05	2.64E-03	5.28E-03	2.64E-03	2.64E-02	2.64E-04	1.06E-03	2.64E-04	5.28E+00	1.06E-02	2.47E+03

Notes:

1. Emission factors are based on SDAPCD Calculation Method L01 - Landfill Gas Default Composition, dated 8/24/99. This document contains APCD local haul road sample results, showing ppmw values for the compounds shown in these tables.

GCLF Off-Road Vehicle Diesel Particulate Emissions for Closing Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation/ripping	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[(2)] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Title 13 California Code of Regulations, Section 2423, Table 1 for off-road engines.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Estimate No. of Equipment

Source	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from BAA to landfill	20.3	BCY/trip	106.0	0.722	7.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAA Excavation/ripping	#REF!	BCY/hr	--	--	1.0
Dozer	Landfill Waste Spreading	#REF!	BCY/hr			1.0
Compactor	FC Compacting Waste	#REF!	CCY/hr			0.0
Compactor	FC Compacting Cover	672.7	CCY/hr			1.0

Emissions by Equipment

Source	Use	Diesel PM-10			Diesel PM-2.5		
		lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	0.521	5.729	1,758.9	0.521	5.729	1,758.9
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.014	0.159	48.7	0.014	0.159	48.7
Grader[1]	Haul Road Maintenance	0.051	0.051	15.8	0.051	0.051	15.8
Dozer	Excavation/ripping	0.064	0.701	215.3	0.064	0.701	215.3
Dozer	Waste Spreading	0.064	0.701	215.3	0.064	0.701	215.3
Compactor	Compacting Waste	0.000	0.000	0.0	0.000	0.000	0.0
Compactor	Compacting Cover	0.064	0.701	215.3	0.064	0.701	215.3
	Diesel Equipment Exhaust Total	**0.778**	**8.044**	**2,469.4**	**0.778**	**8.044**	**2,469.4**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area

Area	Diesel PM-10			Diesel PM-2.5		
	lb/hr	lb/day	lb/yr	lb/hr	lb/day	lb/yr
Main UP	0.018	0.018	5.673	0.018	0.018	5.673
Main UPS	0.0002	0.0002	0.059	0.0002	0.0002	0.059
BAA Haul	0.207	2.262	694.355	0.207	2.262	694.355
BAA UNS	0.030	0.182	55.947	0.030	0.182	55.947
FC Haul	0.295	3.225	990.098	0.295	3.225	990.098
FC UNS	0.030	0.183	56.042	0.030	0.183	56.042
BAAOPS - Excavation	0.064	0.701	215.344	0.064	0.701	215.344
BAAOPS - Loading	0.004	0.043	13.140	0.004	0.043	13.140
FCOPS - Compaction Waste	0.000	0.000	0.000	0.000	0.000	0.000
FCOPS - Spreading	0.066	0.728	223.382	0.066	0.728	223.382
FCOPS - Compacting Cover	0.064	0.701	215.344	0.064	0.701	215.344
Diesel Equipment Exhaust Total	0.778	8.044	2469.383	0.778	8.044	2469.383

GCLF Off-Road Vehicle Diesel Particulate Emissions for Closing Year

Division of Emissions

Area	Scraper		Grader	
	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	58.14	36.0%
Main UPS	--	--	0.61	0.4%
BAA Haul	66,373	38.4%	4.1	2.5%
BAA UNS[1]	4,917	2.8%	46.5	28.8%
FC Haul	94,643	54.7%	5.8	3.6%
FC UNS[1]	4,926	2.8%	46.5	28.8%
BAA Loading	1,257	0.7%	--	--
FC Unloading	769	0.4%	--	--
Totals	**172,885**	**100.0%**	**162**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

Main Unpaved DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.018	0.018
Daily Emissions	lb/day	0.018	0.018
Annual Emissions	lb/year	5.673	5.673

Main Unpaved Stabilized DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.0002	0.0002
Daily Emissions	lb/day	0.0002	0.0002
Annual Emissions	lb/year	0.059	0.059

BAA Haul DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.207	0.207
Daily Emissions	lb/day	2.262	2.262
Annual Emissions	lb/year	694.355	694.355

BAA UNS DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.030	0.030
Daily Emissions	lb/day	0.182	0.182
Annual Emissions	lb/year	55.947	55.947

FC Haul DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.295	0.295
Daily Emissions	lb/day	3.225	3.225
Annual Emissions	lb/year	990.098	990.098

FC UNS DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.030	0.030
Daily Emissions	lb/day	0.183	0.183
Annual Emissions	lb/year	56.042	56.042

BAAOPS DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.04	0.04
Annual Emissions	lb/year	13.14	13.14
Daily Emission Rate	g/s	0.000490245	0.000490245
Annual Emission Rate	g/s	0.000480848	0.000480848

FCOPS DPM Calculated Emissions	**Units**	**PM_{10} Value**	**$PM_{2.5}$ Value**
Hourly Emissions	lb/hour	0.13	0.13
Daily Emissions	lb/day	1.43	1.43
Annual Emissions	lb/year	438.73	438.73
Daily Emission Rate	g/s	0.016369043	0.016369043
Annual Emission Rate	g/s	0.016055259	0.016055259

GCLF Off-Road Vehicle Criteria Pollutant Emissions for Closing Year

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					hrs/day	days/year
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation/ripping	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model, CARB, 11/2007.

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Rating (bhp)	Tier	PM10 (g/bhp-hr)	PM2.5[(2)] (g/bhp-hr)
100-175	2	0.22	0.22
175-300	2	0.15	0.15
300-600	2	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. Since diesel engine particulate emissions are generally less than 10 micrometers in diameter, PM10 and PM2.5 emissions are assumed the same.

Off-road Diesel Engine Emissions (g/bhp-hr)[1,2]

	ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	0.3	2.59	4.7	4.87E-03	0.15	0.15
Scraper (Scraper Engine)	0.3	2.59	4.7	4.87E-03	0.15	0.15
Grader	0.3	3.7	4.7	4.87E-03	0.15	0.15
Dozer	0.3	2.59	4.7	4.87E-03	0.22	0.22
Dozer	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.87E-03	0.15	0.15
Compactor	0.3	2.59	4.7	4.87E-03	0.15	0.15

Table Notes:

1. Based on Tier 2 emission standards specified in Off-Road Engines, South Coast AQMD, Table II - Off-Road Engine Emissions Rates & Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates.

2. For CO, based on Tier 2 emission standards specified in USEPA's Emission Standards Reference Guide: Nonroad Compression-Ignition Engines -- Exhaust Emission Standards.

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips per Day	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from BAA to landfill	20.340	BCY/trip	106.0	0.722	7.0
Grader	Haul Road Maintenance	--	--	--	--	1.0
Dozer	BAA Excavation/ripping	900.0	BCY/hr	--	--	1.0
Dozer	Landfill Waste Spreading	900.0	BCY/hr			1.0
Compactor	FC Compacting Waste	672.7	CCY/hr			0.0
Compactor	FC Compacting Cover	672.7	CCY/hr			1.0

Emissions by Equipment: Hourly (lb/hr)

Source	Use	Pollutant					
		ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	1.042	8.993	16.319	0.017	0.521	0.521
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.029	0.249	0.452	0.000	0.014	0.014
Grader[1]	Haul Road Maintenance	0.070	0.605	1.098	0.001	0.051	0.051
Dozer	Excavation/ripping	0.128	1.101	1.998	0.002	0.064	0.064
Dozer	Waste Spreading	0.128	1.101	1.998	0.002	0.064	0.064
Compactor	Compacting Waste	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	Compacting Cover	0.128	1.101	1.998	0.002	0.064	0.064
	Diesel Equipment Exhaust Total	**1.523**	**13.150**	**23.864**	**0.025**	**0.778**	**0.778**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

GCLF Off-Road Vehicle Criteria Pollutant Emissions for Closing Year

Emissions by Equipment: Daily (lb/day)

Source	Use	pollutant					
		ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	11.458	98.924	179.514	0.186	5.729	5.729
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.317	2.740	4.973	0.005	0.159	0.159
Grader[1]	Haul Road Maintenance	0.070	0.605	1.098	0.001	0.051	0.051
Dozer	Excavation/ripping	1.403	12.112	21.979	0.023	0.701	0.701
Dozer	Waste Spreading	1.403	12.112	21.979	0.023	0.701	0.701
Compactor	Compacting Waste	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	Compacting Cover	1.403	12.112	21.979	0.023	0.701	0.701
Diesel Equipment Exhaust Total		**16.054**	**138.604**	**251.520**	**0.261**	**8.044**	**8.044**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Equipment: Annual (ton/yr)

Source	Use	Pollutant					
		ROG	CO	NOx	SO2	PM10	PM2.5
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	1.759	15.185	27.555	0.029	0.879	0.879
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	0.049	0.421	0.763	0.001	0.024	0.024
Grader[1]	Haul Road Maintenance	0.011	0.093	0.169	0.000	0.008	0.008
Dozer	Excavation/ripping	0.215	1.859	3.374	0.003	0.108	0.108
Dozer	Waste Spreading	0.215	1.859	3.374	0.003	0.108	0.108
Compactor	Compacting Waste	0.000	0.000	0.000	0.000	0.000	0.000
Compactor	Compacting Cover	0.215	1.859	3.374	0.003	0.108	0.108
Diesel Equipment Exhaust Total		**2.464**	**21.276**	**38.608**	**0.040**	**1.235**	**1.235**

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

Emissions by Area (lb/hr)

Area	Emissions (lb/hr)					
	ROG	CO	NOx	SO2	PM10	PM2.5
Main UP	0.025	0.218	0.395	0.000	0.018	0.018
Main UPS	0.0003	0.0023	0.0041	0.0000	0.0002	0.0002
BAA Haul	0.413	3.564	6.467	0.007	0.207	0.207
BAA UNS	0.051	0.437	0.793	0.001	0.030	0.030
FC Haul	0.589	5.081	9.221	0.010	0.295	0.295
FC UNS	0.051	0.437	0.794	0.001	0.030	0.030
BAAOPS - Excavation	0.128	1.101	1.998	0.002	0.064	0.064
BAAOPS - Loading	0.008	0.067	0.122	0.000	0.004	0.004
FCOPS - Compaction Waste	0.000	0.000	0.000	0.000	0.000	0.000
FCOPS - Spreading	0.132	1.142	2.073	0.002	0.066	0.066
FCOPS - Compacting Cover	0.128	1.101	1.998	0.002	0.064	0.064
Diesel Equipment Exhaust Total	1.523	13.150	23.864	0.025	0.778	0.778

Emissions by Area (lb/day)

Area	Emissions (lb/day)					
	ROG	CO	NOx	SO2	PM10	PM2.5
Main UP	0.025	0.218	0.395	0.000	0.018	0.018
Main UPS	0.0003	0.0023	0.0041	0.0000	0.0002	0.0002
BAA Haul	4.523	39.046	70.855	0.073	2.262	2.262
BAA UNS	0.355	3.065	5.563	0.006	0.182	0.182
FC Haul	6.449	55.676	101.034	0.105	3.225	3.225
FC UNS	0.356	3.071	5.572	0.006	0.183	0.183
BAAOPS - Excavation	1.403	12.112	21.979	0.023	0.701	0.701
BAAOPS - Loading	0.086	0.739	1.341	0.001	0.043	0.043
FCOPS - Compaction Waste	0.000	0.000	0.000	0.000	0.000	0.000
FCOPS - Spreading	1.455	12.564	22.799	0.024	0.728	0.728
FCOPS - Compacting Cover	1.403	12.112	21.979	0.023	0.701	0.701
Diesel Equipment Exhaust Total	16.054	138.604	251.520	0.261	8.044	8.044

GCLF Off-Road Vehicle Criteria Pollutant Emissions for Closing Year

Emissions by Area (ton/yr)

Area	Emissions (tons/yr)					
	ROG	CO	NOx	SO2	PM10	PM2.5
Main UP	0.004	0.033	0.061	0.000	0.003	0.003
Main UPS	0.000	0.000	0.001	0.000	0.000	0.000
BAA Haul	0.694	5.993	10.876	0.011	0.347	0.347
BAA UNS	0.055	0.471	0.854	0.001	0.028	0.028
FC Haul	0.990	8.546	15.509	0.016	0.495	0.495
FC UNS	0.055	0.471	0.855	0.001	0.028	0.028
BAAOPS - Excavation	0.215	1.859	3.374	0.003	0.108	0.108
BAAOPS - Loading	0.013	0.113	0.206	0.000	0.007	0.007
FCOPS - Compaction Waste	0.000	0.000	0.000	0.000	0.000	0.000
FCOPS - Spreading	0.223	1.929	3.500	0.004	0.112	0.112
FCOPS - Compacting Cover	0.215	1.859	3.374	0.003	0.108	0.108
Diesel Equipment Exhaust Total	2.464	21.276	38.608	0.040	1.235	1.235

Division of Emissions

Area	Scraper		Grader	
	VMT/yr[1]	% of Emissions	VMT/yr[1]	% of Emissions
Main UP	--	--	58.14	36.0%
Main UPS	--	--	0.61	0.4%
BAA Haul	66,373	38.4%	4.1	2.5%
BAA UNS[1]	4,917	2.8%	46.5	28.8%
FC Haul	94,643	54.7%	5.8	3.6%
FC UNS[1]	4,926	2.8%	46.5	28.8%
BAA Loading	1,257	0.7%	--	--
FC Unloading	769	0.4%	--	--
Totals	**172,885**	**100.0%**	**162**	**100.0%**

Table Notes:

1. The "UNS" segments of the roads are the road ends within the active working area where stabilization would not occur.

GCLF Emissions from the Paved Main Road for Closing Year

Paved Road equation from AP-42 (1/1995) Section 13.2.1 with additional speed factor:

$EF=k(sL/2)^{0.65}(W/3)^{1.5}(S/SF)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.016	0.007
Particle Size Multiplier (k)		0.016	0.0073
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Loading (sL)	g/m^2	0.4	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Speed Factor (SF)	mph	32.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	2,800
Other trucks per day	trucks/day	145
Daily VMT	VMT/day	154

E=EF x VMT

E=Emissions (lbs/day)

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day)

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.22	0.10
Daily Emissions	lb/day	2.39	1.09
Annual Emissions	ton/yr	0.37	0.17

Notes:

1) Paved road emission factor is calculated with the paved road equation in AP-42 Section 13.2.1 (1/1995), with an additional speed factor, where trucks travel an average of 7.5 mph, without control efficiency. However, measures such as sweeping and other track out controls will be employed.

2) The $PM_{2.5}$ emission factor is based on AP-42 Section 13.2.2, (1/1995), where the particle size multiplier, k value, in Table 13.2.1.3 is 0.0073 lb/VMT (Note: This value is more conservative than the new AP-42 Section 13.2.1 (1/2006), with a k value of 0.0024 lb/VMT).

3) Silt loading (sL) value is based on 95% control and the AP-42 Table 13.2.1-3 mean silt loading value of 7.4 g/m^2 for municipal solid waste landfills. Control will be achieved through a combination of sweeping, track-out programs, and other measures as necessary.

4) One way paved road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.

5) Number of vehicles per day derived from 145 onsite trucks for closure activity in year 23, referenced from Volume IV - AEI Appendix F, October 2008.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Closing Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.082	0.022
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	800
Other trucks per day		145
Daily VMT	VMT/day	44

E=EF x VMT

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.33	0.09
Daily Emissions	lb/day	3.60	0.95
Annual Emissions	ton/yr	0.55	0.15

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way unpaved road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.

5) Number of vehicles per day derived from 145 onsite trucks for closure activity in year 23, referenced from Volume IV - AEI Appendix F, October 2008.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Stabilized Main Road for Closing Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	4	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	800
Grader Passes	pass/yr	4
Daily VMT	VMT/yr	0.61

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.00	0.00
Daily Emissions	lb/day	0.00	0.00
Annual Emissions	ton/yr	0.00	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unpaved Unstabilized Main Road for Closing Year

Truck Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.273	0.072
Particle Size Multiplier (k)		0.360	0.095
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	15.7	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		8.4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	500
Other trucks per day		145
Daily VMT	VMT/day	27

$$E=EF \times VMT$$

E=Emissions (lbs/day (year))

EF=Emission Factor (lbs/VMT)

VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.67	0.18
Daily Emissions	lb/day	7.37	1.94
Annual Emissions	ton/yr	1.13	0.30

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way unpaved road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.

5) Number of vehicles per day derived from 145 onsite trucks for closure activity in year 23, referenced from Volume IV - AEI Appendix F, October 2008.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unpaved Unstabilized Main Road for Closing Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	500
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.19

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.16	0.02
Daily Emissions	lb/day	0.33	0.04
Annual Emissions	ton/yr	0.05	0.01

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Borrow Area A Haul Road for Closing Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	5,400
Average load	BCY/scraper	20.3
Scrapers per day		96
Other scrapers per day		10
Soil	CY/day	1,954
Daily VMT	VMT/day	217
Scrapers per year		29,499
Other scrapers per year		2,950
Soil	CY/year	600,000
Annual VMT	VMT/year	66,373

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.36	0.89
Daily Emissions	lb/day	37.00	9.77
Annual Emissions	ton/yr	5.66	1.49

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Borrow Area A Haul Road for Closing Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	5,400
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	4.09

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.76	0.20
Daily Emissions	lb/day	1.76	0.20
Annual Emissions	ton/yr	0.00	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Borrow Area A Haul Road for Closing Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	1.251	0.330
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours/day	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	33	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	BCY/scraper	20.3
Scrapers per day		96
Other scrapers per day		10
Soil	CY/day	1,954
Daily VMT	VMT/day	16
Scrapers per year		29,499
Other scrapers per year		2,950
Soil	CY/year	600,000
Annual VMT	VMT/year	4,917

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.82	0.48
Daily Emissions	lb/day	20.01	5.28
Annual Emissions	ton/yr	3.07	0.81

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

4) One way road distance was obtained by using approximately last 200 feet of each end of road.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unstabilized Borrow Area A Haul Road for Closing Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by using approximately last 200 feet of each end of road.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from the Final Cover Haul Road for Closing Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	0.171	0.045
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	15	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		97%	

VMT Calculations	Units	Value
One way distance	feet	7,700
Average load	BCY/scraper	20.3
Scrapers per day		96
Other scrapers per day		10
Soil	CY/day	1,954
Daily VMT	VMT/day	309
Scrapers per year		29,499
Other scrapers per year		2,950
Soil	CY/year	600,000
Annual VMT	VMT/year	94,643

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	4.79	1.26
Daily Emissions	lb/day	52.69	13.91
Annual Emissions	ton/yr	8.07	2.13

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 97% control efficiency since the road is chemically stabilized.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) Silt value was the district default value of unpaved road silt data obtained from San Diego Air District in an email from Steve Moore dated February 5, 2009.

4) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Final Cover Haul Road for Closing Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Vehicle Mean Speed (S)	mph	7.5	
Control Efficiency (e)		0%	

VMT Calculations	Units	Value
One way distance	feet	7,700
Grader Passes	pass/yr	4
Yearly VMT	VMT/yr	5.83

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	2.51	0.28
Daily Emissions	lb/day	2.51	0.28
Annual Emissions	ton/yr	0.01	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by measuring the road distance in the input file used in the modeling for year 23.
3) Emissions are based on grading the stabilized road once per quarter, when Soiltac sealer is applied (four times per year).

GCLF Emissions from the Unstabilized Final Cover Haul Road for Closing Year

Scraper Travel

Unpaved Road equation from AP-42 (1/1995) Section 13.2.2:

$EF=k(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}((365-p)/365)(1-e)$

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Emission Factor (EF)	lbs/VMT	1.251	0.330
Particle Size Multiplier (k)	lbs/VMT	0.360	0.095
Hours of Operation	hours	11	
Operational Days per Year	days/year	307	
Silt Content (s)	%	33	
Average Vehicle Weight (W)	tons	76	
Vehicle Mean Speed (S)	mph	7.5	
Number of Vehicle Wheels (w)		4	
Days Annual Precip > 0.01 in (p)	days/year	40	
Control Efficiency (e)		90%	

VMT Calculations	Units	Value
One way distance	feet	400
Average load	BCY/scraper	20.3
Scrapers per day		96
Other scrapers per day		10
Soil	CY/day	1,954
Daily VMT	VMT/day	16
Scrapers per year		29,557
Other scrapers per year		2,956
Soil	CY/year	600,000
Annual VMT	VMT/year	4,926

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.82	0.48
Daily Emissions	lb/day	20.01	5.28
Annual Emissions	ton/yr	3.08	0.81

Notes:

1) Unpaved road emission factor is calculated with the unpaved road equation in AP-42 Section 13.2.2 (1/1995), with 90% control efficiency.

2) The $PM_{2.5}$ emission factor is based on a k-factor from AP-42 Section 13.2.2 (1/1995), as 0.095, and will be used since the newer AP-42 Section 13.2.2 (11/2006) contains a different PM emission factor equation for PM_{10} and $PM_{2.5}$ that was not approved by APCD for this assessment.

3) A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B and will be used for the landfill deck and haul road ends that cannot be stabilized. This value was accepted since this area is watered but not swept or otherwise maintained. The silt value is the average of test data from the 1998 GLA Borrow Area Study.

4) One way road distance was obtained by using approximately last 200 feet of each end of road.

5) Number of scrapers derived from soil needed and a scraper capacity of 20.3 CY. An extra scraper amount of 10% was added in as a buffer. Capacity referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

6) Other operational parameters obtained from Volume IV - AEI Appendix F, October 2008.

GCLF Emissions from the Unstabilized Final Cover Haul Road for Closing Year

Grading

Grading equation from AP-42 (7/1998) Section 11.9:

PM10 EF=k x 0.051 x (S)^2.0
PM2.5 EF=k x 0.040 x (S)^2.5

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value
Controlled Emission Factor (EF)	lbs/VMT	1.721	0.191
Scaling Factor (k)		0.60	0.031
Hours of Operation	hours	11	11
Operational Days per Year	days/year	307	307
Vehicle Mean Speed (S)	mph	7.5	7.5
Control Efficiency (e)		0%	0%

VMT Calculations	Units	Value
One way distance	feet	400
Grader Passes	pass/day	2
Daily VMT	VMT/day	0.15

E=EF x VMT

E=Emissions (lbs/day (year))
EF=Emission Factor (lbs/VMT)
VMT=Vehicle Miles Traveled (miles/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	0.13	0.01
Daily Emissions	lb/day	0.26	0.03
Annual Emissions	ton/yr	0.04	0.00

Notes:
1) The emission factors for grading are obtained from AP-42, Section 11.9, (7/1998).
2) One way road distance was obtained by using approximately last 200 feet of each end of road.
3) Emissions are based on grading the unstabilized road twice per day.

GCLF Emissions from Excavation at Borrow Area A for Closing Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, uncontrolled	lbs/1000 BCY	10.99	1.65	0.15
Emission Factor, controlled	lbs/1000 BCY	7.95	1.19	
Hours of Operation	hours/day	11	11	
Operational Days per Year	days/year	307	307	
Daily Excavation volume	CY/day	1,954	1,954	
Annual Excavation volume	CY/year	600,000	600,000	

E=(EF x EV x 1000)

E = Emissions (lbs/day (year))
EF = Emission Factor (lbs/1000 BCY)
EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	1.41	0.21
Daily Emissions	lb/day	15.53	2.33
Annual Emissions	ton/yr	2.38	0.36

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. The emission factor was adjusted to account for 33% silt. A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B. Additionally, an uncontrolled moisture content of 6.71% is used for the uncontrolled EF and a controlled moisture content of 8.46% is used from the controlled EF.
2) Excavation volumes are based on information from Volume IV - AEI Appendix F, October 2008.
3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to excavation.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Final Cover Operations for Closing Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Loading Scraper at Borrow Area A				
Emission Factor, uncontrolled	lbs/1000 BCY	112.62	16.89	0.15
Emission Factor, controlled	lbs/1000 BCY	13.79	2.07	
Unloading Scraper at the Landfill				
Emission Factor, uncontrolled	lbs/1000 BCY	27.82	4.17	
Emission Factor, controlled	lbs/1000 BCY	3.22	0.48	
Compacting Final Cover at the Landfill				
Emission Factor, uncontrolled	lbs/1000 CCY	50.55	7.58	
Emission Factor, controlled	lbs/1000 CCY	6.77	1.02	
Hours of Operation	hours	11	11	
Operational Days per Year	days/year	307	307	
Max Daily Cover Soil from SPA	CY/day	1,954	1,954	
Annual Cover Soil from SPA	CY/year	600,000	600,000	

E=EF x EV x 1000

E = Emissions (lbs/day (year))

EF = Emission Factor (lbs/1000 BCY)

EV = Excavation Volume (CY/day (year))

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value
Loading Scraper at Borrow Area A			
Hourly Emissions	lb/hour	2.45	0.37
Daily Emissions	lb/day	26.95	4.04
Annual Emissions	ton/yr	4.14	0.62
Spreading / Unloading Scraper at the Landfill (Soil from BAA)			
Hourly Emissions	lb/hour	0.57	0.09
Daily Emissions	lb/day	6.29	0.94
Annual Emissions	ton/yr	0.97	0.14
Compacting Final Cover at the Landfill			
Hourly Emissions	lb/hour	1.20	0.18
Daily Emissions	lb/day	13.23	1.98
Annual Emissions	ton/yr	2.03	0.30

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09. The emission factor was adjusted to account for 33% silt. A value of 33% silt was determined for the years using Borrow Area A or Borrow Area B. Additionally, an uncontrolled moisture content of 6.71% is used for the uncontrolled EF and a controlled moisture content of 8.46% is used from the controlled EF.

2) Soil parameters are based on information from Volume IV - AEI Appendix F, October 2008.

3) To be consistent with material handling for unloading, a $PM_{2.5}/PM_{10}$ ratio of 0.15 will be applied to daily cover soil spreading.

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, states that current studies support $PM_{2.5}/PM_{10}$ ratios in the range of 0.1 to 0.15.

GCLF Emissions from Wind Erosion for Closing Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	$PM_{2.5}/PM_{10}$ Ratio
Emission Factor, Disturbed Areas	lb/acre-hour	0.8071	0.1211	0.15
Emission Factor, Disturbed Areas	lb/acre-year	202.54	30.38	
Emission Factor, Undisturbed Areas	lb/acre-hour	0.5649	0.0847	
Emission Factor, Undisturbed Areas	lb/acre-year	141.78	21.27	
Hours of Operation	hours/day	24		
Operational Days per Year	days/year	365		
Frequency of Wind over threshold	hours/year	0.029		
Disturbed Area - Borrow Area A	acres	22		
Undisturbed Area - Borrow Area B	acres	6		
Disturbed Area - Landfill Area	acres	183		

Calculated Emissions - Borrow Area A	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	17.76	2.66
Daily Emissions	lb/day	426.13	63.92
Annual Emissions	ton/yr	2.23	0.33

Calculated Emissions - Borrow Area B	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	3.39	0.51
Daily Emissions	lb/day	81.35	12.20
Annual Emissions	ton/yr	0.43	0.06

Calculated Emissions - Landfill Area	Units	PM_{10} Value	$PM_{2.5}$ Value
Hourly Emissions	lb/hour	147.69	22.15
Daily Emissions	lb/day	3544.59	531.69
Annual Emissions	ton/yr	18.53	2.78

E=EF x A

E= Emissions (lbs/day)

EF = Emission Factor (lb/acre-day)

A = Exposed Area (acres)

Notes:

1) Emission factor referenced from SDAPCD / Steve Moore's construction emission spreadsheet, dated 11/25/09.

2) 22 acres disturbed area in Borrow Area A assumes the entire borrow area is disturbed and is referenced from the Gregory Canyon Landfill Final EIR, December 2002, Table 3-1 as the size of the borrow area. 183 acres disturbed area in the landfill assumes the entire landfill minus the power pole pads would be disturbed during final cover. 4.5 acres undisturbed, unvegetated area in Borrow Area B is from prior year activity. Borrow Area B is used over a perioc of approximately 15 years, for an approximate acreage of 4.5 acres per year.

3) In Section 13.2.5 of AP-42, Industrial wind erosion, k factors for PM_{10} and $PM_{2.5}$ are available. In the 1/1995 version, $k(PM_{2.5}) = 0.2$ and $k(PM_{10}) = 0.5$. In the 11/2006 version, $k(PM_{2.5}) = 0.075$ and $k(PM_{10}) = 0.5$.

	$PM_{2.5}/PM_{10}$
AP-42 1/1995	0.4
AP-42 11/2006	0.15

4) In "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" Nov 2006, Table 1 also states for open area wind erosion, a proposed $PM_{2.5}/PM_{10}$ ratio is 0.15

GCLF Emissions from Landfill Gas Flares for Closing Year

Parameter	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Emission Factor	lb/MMdscf methane	10	10	30	1.5	7.34	2.66
Max. Hourly Flared LFG	MM ft^3/hr	0.315	0.315	0.315	0.315	0.315	0.315
Max. Daily Flared LFG	MM ft^3/day	7.548	7.548	7.548	7.548	7.548	7.548
Max. Yearly Flared LFG	MM ft^3/yr	2,755.04	2,755.04	2,755.04	2,755.04	2,755.04	2,755.04
Methane Fraction of LFG	%	50%	50%	50%	50%	--	--
Hours of Operation	hours/day	24	24	24	24	24	24
Number of Flares		6	6	6	6	6	6

Calculated Emissions	Units	PM_{10} Value	$PM_{2.5}$ Value	NOx Value	CO Value	SOx Value	VOC Value
Hourly Emissions	lb/hour	1.57	1.57	4.72	0.24	2.31	0.84
Daily Emissions	lb/day	37.74	37.74	113.22	5.66	55.40	20.08
Annual Emissions	ton/yr	6.9	6.9	20.7	1.0	10.1	3.7

$E = EF \times F_{LFG}$

E= Emissions (lbs/day)

EF = Emission Factor (lb/MM ft^3)

F_{LFG} = Flared LFG (MM ft^3/day)

Notes:

1) Emission factor for $PM_{10}/PM_{2.5}$ of 10 lb/$MMft^3$ based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where TSP = 0.020 lb/MMBtu and PM_{10} = TSP. Emission factor is in lbs/$mmft^3$ fuel burned, so this factor is applied to the methane portion of LFG (50% methane).

2) Emission factor for NOx of 30 lb/MMft3 based on BACT for Enclosed Flares - SDAPCD ATC for adding one landfill gas flare system at Sycamore Landfill (Application No. 980163).

3) Emission factor for CO of 1.5 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on District flare testing data, where CO = 0.003 lb/MMBtu. Emission factor is in lbs/mmft3 fuel burned, so this factor is applied to the methane portion of LFG (44% methane).

4) Emission factor for SOx of 7.34 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 raw gas sulfur content and a 98% conversion rate. So, this emission rate applies to the total LFG.

5) Emission factor for VOC/ROG of 2.66 lb/MMft3 based on SDAPCD Calculation Method F04 - Flare, Landfill Gas Fired, Enclosed, dated 8/23/99. Emission factor is based on AP-42 Section 2.4, (9/1997), Table 2.4-1, and assumes 595 ppmv as hexane and a 98% DRE. Emission factor is the default concentration and applies to total LFG.

6) Max Flared LFG based on LandGEM modeling using the District's parameter's k = 0.02 yr^{-1} and **Lo = 110**. The values are derived from an annual value of 8.010E7 m^3/yr of uncontrolled LFG in year 31.

7) Number of flares is based on a total fuel throughput rating of 1500 scfm per flare. Six (6) flares are needed in year 31.

8) To be conservative, it is assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

GCLF Criteria Emissions from Fugitive Landfill Gas for Closing Year

Closing Year LFG Parameters

Parameter	Units	
Max. Hourly Flared LFG	MM ft^3/hr	0.315
Max. Daily Flared LFG	MM ft^3/day	7.548
Max. Yearly Flared LFG	MM ft^3/yr	2,755.04
Hours of Operation	hours/day	24
Number of Flares		6
Max. Hourly Fugitive LFG	MM ft^3/hr	0.017
Max. Daily Fugitive LFG	MM ft^3/day	0.397
Max. Yearly Fugitive LFG	MM ft^3/yr	145.00

Closing Year Criteria Pollutant Emissions From Fugitive Landfill Gas

Yr	Fugitive LFG (MM ft^3/hr)	Fugitive LFG (MM ft^3/yr)	Hourly Criteria Pollutant Emissions (lbs/hr)		(ton/yr)	
			CO	VOC	CO	VOC
			141	**595**	**141**	**595**
			28.01	**86.17**	**28.01**	**86.17**
31	0.017	145.002	0.17	2.20	0.74	9.65

Notes:

1. Emission factors obtained from AP-42 Section 2.4 - Municipal Solid Waste Landfills, Tables 2.4-1 and 2.4-2, dated November 1998.

Gregory Canyon Landfill Draft EIS
Ancillary Structures

Structure	Quantity[a]	Unit[a]	Phase of Construction	Lot Acreage[b]	Concrete	Paved
Fee booths	2	units	Initial	0.00	x	
Administrative Office Bldg	4	ksf	Initial	0.09	x	
Tilt-Up Concrete Maintenance Bldg	7	ksf	Initial	0.16	x	
Concrete Containment Wall (Diesel Storage Tank Within)				0.00	x	
Equipment and Storage Area				0.56	x	
Groundwater Treatment Facility				0.09	x	
Leachate and Subdrain Collection System Holding Tanks				0.02	x	
Visitor Check-In Station				0.02	x	
Admin Parking & Visitor Parking				0.06		x
Flare Station				0.11	x	
Water Tank Area				0.09	x	
Entire Lot (estimated)				5.62		
Entire Paved Area (Entire Lot - Concrete)				4.16		
Access Road & Bridge[c]				20.00		
Total				24.16		

a From Project Description
b Estimates based on Fig 3-9
c Engineering Estimate

Gregory Canyon Landfill Draft EIS
Ancillary Structures

Phase Name	Phase Type	Start Date	End Date	Days/Week	Total Days
Admin Bldg/Maintenance Bldg: Less Than 1 acre in Lot Size Each					
Demolition	Demolition	1/2/2014	1/15/2014	5	10
Site Preparation	Site Preparation	1/16/2014	1/16/2014	5	1
Grading	Grading	1/17/2014	1/20/2014	5	2
Building Construction	Building Construction	1/21/2014	6/9/2014	5	100
Paving	Paving	6/10/2014	6/16/2014	5	5
Architectural Coating	Architectural Coating	6/17/2014	6/23/2014	5	5

Phase Name	Phase Type	Start Date	End Date	Days/Week	Total Days
24.5 Acres of Equipment & Storage Area (Paving Only)					
Demolition	Demolition	1/2/2014	1/28/2014	5	19
Site Preparation	Site Preparation	1/29/2014	2/11/2014	5	10
Grading	Grading	2/12/2014	4/1/2014	5	35
Building Construction	Building Construction	4/2/2014	12/31/2014	5	196
Paving	Paving	12/1/2014	12/31/2014	5	23
Architectural Coating	Architectural Coating	9/1/2014	12/31/2014	5	88

Access Road & Bridge: 20 acres in Lot Size, Paving Only; Paved Area: 4.16 acres					
Demolition	Demolition	1/2/2014	1/28/2014	5	19
Site Preparation	Site Preparation	1/29/2014	2/4/2014	5	5
Grading	Grading	2/5/2014	3/18/2014	5	30
Building Construction	Building Construction	2/12/2014	7/1/2014	5	100
Paving	Paving	6/4/2014	7/1/2014	5	20
Architectural Coating	Architectural Coating	6/4/2014	7/1/2014	5	20

Paved Area: 4.16 acres					
Demolition	Demolition	1/2/2014	1/28/2014	5	19
Site Preparation	Site Preparation	1/29/2014	2/4/2014	5	5
Grading	Grading	2/5/2014	3/18/2014	5	30
Paving	Paving	3/19/2014	4/15/2014	5	20
Architectural Coating	Architectural Coating	3/19/2014	4/15/2014	5	20

>5 acres in Lot Size					
Demolition	Demolition	2011/01/02	2011/01/28	5	20
Site Preparation	Site Preparation	2011/01/29	2011/02/11	5	10
Grading	Grading	2011/02/12	2011/03/11	5	20
Building Construction	Building Construction	2011/03/12	2012/01/27	5	230
Paving	Paving	2012/01/28	2012/02/24	5	20
Architectural Coating	Architectural Coating	2012/02/25	2012/03/23	5	20

Gregory Canyon Landfill Draft EIS
Ancillary Structures

Less Than 1 acre in Lot Size: Admin Bldg; Maintenance Bldg					
PhaseName	OffRoadEquipmentType	OffRoadEquipmentUnitAmount	UsageHours	HorsePower	LoadFactor
Demolition	Concrete/Industrial Saws	1	8	81	0.73
Demolition	Rubber Tired Dozers	1	1	358	0.59
Demolition	Tractors/Loaders/Backhoes	2	6	75	0.55
Site Preparation	Graders	1	8	162	0.61
Site Preparation	Tractors/Loaders/Backhoes	1	8	75	0.55
Grading	Concrete/Industrial Saws	1	8	81	0.73
Grading	Rubber Tired Dozers	1	1	358	0.59
Grading	Tractors/Loaders/Backhoes	1	6	75	0.55
Building Construction	Cranes	1	4	208	0.43
Building Construction	Forklifts	1	6	149	0.3
Building Construction	Tractors/Loaders/Backhoes	1	8	75	0.55
Paving	Cement and Mortar Mixers	1	6	9	0.56
Paving	Pavers	1	7	89	0.62
Paving	Rollers	1	7	84	0.56
Paving	Tractors/Loaders/Backhoes	1	7	75	0.55
Architectural Coating	Air Compressors	1	6	78	0.48

Access Road & Bridge					
Demolition	Concrete/Industrial Saws	1	8	81	0.73
Demolition	Excavators	3	8	157	0.57
Demolition	Rubber Tired Dozers	2	8	358	0.59
Site Preparation	Rubber Tired Dozers	3	8	358	0.59
Site Preparation	Tractors/Loaders/Backhoes	4	8	75	0.55
Grading	Excavators	2	8	157	0.57
Grading	Graders	1	8	162	0.61
Grading	Rubber Tired Dozers	1	8	358	0.59
Grading	Scrapers	2	8	356	0.72
Grading	Tractors/Loaders/Backhoes	2	8	75	0.55
Building Construction	Cranes	1	7	208	0.43
Building Construction	Forklifts	3	8	149	0.3
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	75	0.55
Building Construction	Welders	1	8	46	0.45
Paving	Pavers	2	8	89	0.62
Paving	Paving Equipment	2	6	82	0.53
Paving	Rollers	2	6	84	0.56
Architectural Coating	Air Compressors	1	6	78	0.48

Equipment & Storage Area: 24.5 acre in Lot Size					
PhaseName	OffRoadEquipmentType	OffRoadEquipmentUnitAmount	UsageHours	HorsePower	LoadFactor
Demolition	Concrete/Industrial Saws	1	8	81	0.73
Demolition	Excavators	3	8	157	0.57
Demolition	Rubber Tired Dozers	2	8	358	0.59
Site Preparation	Rubber Tired Dozers	3	8	358	0.59
Site Preparation	Tractors/Loaders/Backhoes	4	8	75	0.55
Grading	Excavators	2	8	157	0.57
Grading	Graders	1	8	162	0.61
Grading	Rubber Tired Dozers	1	8	358	0.59
Grading	Scrapers	2	8	356	0.72
Grading	Tractors/Loaders/Backhoes	2	8	75	0.55
Building Construction	Cranes	1	7	208	0.43
Building Construction	Forklifts	3	8	149	0.3
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	75	0.55
Building Construction	Welders	1	8	46	0.45
Paving	Pavers	2	8	89	0.62
Paving	Paving Equipment	2	8	82	0.53
Paving	Rollers	2	8	84	0.56
Architectural Coating	Air Compressors	1	6	78	0.48

Paved Area: 4.16 acres					
Demolition	Concrete/Industrial Saws	1	8	81	0.73
Demolition	Excavators	3	8	157	0.57
Demolition	Rubber Tired Dozers	2	8	358	0.59
Site Preparation	Rubber Tired Dozers	3	8	358	0.59
Site Preparation	Tractors/Loaders/Backhoes	4	8	75	0.55
Grading	Excavators	1	8	157	0.57
Grading	Graders	1	8	162	0.61
Grading	Rubber Tired Dozers	1	8	358	0.59
Grading	Tractors/Loaders/Backhoes	3	8	75	0.55
Paving	Cement and Mortar Mixers	2	6	9	0.56
Paving	Pavers	1	8	89	0.62
Paving	Paving Equipment	2	6	82	0.53
Paving	Rollers	2	6	84	0.56
Paving	Tractors/Loaders/Backhoes	1	8	75	0.55
Architectural Coating	Air Compressors	1	6	78	0.48

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Ancillary Structures

PhaseName	MaterialImported	MaterialExported[b]	GradingSizeMetric	ImportExportPhased	MeanVehicleSpeed	AcresOfGrading/Day[a]	MaterialMoistureContentBulldozing	MaterialMoistureContentTruckLoading	MaterialSiltContent
Less Than 1 acre in Lot Size									
Site Preparation	0	0		0	7.1	0.5	7.9	12	6.9
Grading	0	0	CY	0	7.1	0	7.9	12	6.9
4 acres in Lot Size									
Site Preparation	0	0		0	7.1	0	7.9	12	6.9
Grading	0	0	CY	0	7.1	4	7.9	12	6.9
>5 acres in Lot Size									
Site Preparation	0	0		0	7.1	0	7.9	12	6.9
Grading	0	0		0	7.1	10	7.9	12	6.9

[a] *"The number of acres that are displayed represent the total acres traversed by grading equipment assuming a blade width of 12 feet. In order to properly grade a piece of land, multiple passes with equipment may be required. The acres is based on the equipment list and days in grading or site preparation phase according to the maximum number of acres a given piece of equipment can pass over in an 8-hour workday."*

[b] *Assumed export already counted*

Gregory Canyon Landfill Draft EIS
Ancillary Structures

Emissions in Pounds per Day

Land Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Admin Building	19.96	12.46	9.72	0.02	0.44	0.71	0.99	0.19	0.71	0.74
Maintenance Building	33.85	12.46	9.72	0.02	0.44	0.71	0.99	0.19	0.71	0.74
Equipment and Storage Area (Only Paving)	38.26	81.87	57.90	0.10	8.36	3.49	10.92	4.48	3.49	7.03
Paved Area	33.10	61.25	41.65	0.08	8.36	2.56	10.92	4.47	2.55	7.03
Access Road & Bridge	53.53	114.46	82.84	0.15	8.36	5.23	10.92	4.48	5.23	7.03
Worst-Case Day (lb/day)	**178.70**	**282.50**	**201.83**	**0.37**	**25.96**	**12.70**	**34.74**	**13.81**	**12.69**	**22.57**

Emissions in Tons per Year

Land Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Admin Building	0.34	0.59	0.44	0.00	0.00	0.03	0.03	0.00	0.03	0.03
Maintenance Building	0.38	0.59	0.44	0.00	0.00	0.03	0.03	0.00	0.03	0.03
Equipment and Storage Area (Only Paving)	2.84	5.87	4.36	0.01	0.12	0.30	0.41	0.05	0.30	0.35
Paved Area	0.74	1.53	1.14	0.00	0.07	0.07	0.14	0.03	0.07	0.11
Access Road & Bridge	1.85	3.83	2.83	0.00	0.09	0.19	0.27	0.04	0.19	0.22
Annual (tons/year)	**6.15**	**12.41**	**9.21**	**0.01**	**0.28**	**0.62**	**0.88**	**0.12**	**0.62**	**0.74**

Gregory Canyon Access Road & Bridge

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	20	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Begin construction in 2014

Off-road Equipment - CalEEMod Default equipment list (See Ancillary Structures.xls)

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Grading - Assume export already counted

Construction Off-road Equipment Mitigation - Use of Tier 2 engines, Watering exposed areas and unpaved roads at least twice daily (55% PM reduction)

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	16.07	122.84	75.28	0.15	18.30	6.21	21.92	9.94	6.21	13.56	0.00	15,102.11	0.00	1.44	0.00	15,132.33
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	53.53	114.46	82.84	0.15	8.36	5.23	10.92	4.48	5.23	7.03	0.00	15,102.11	0.00	1.44	0.00	15,132.33
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.39	66.18	41.03	0.07		3.21	3.21		3.21	3.21		7,510.81		0.75		7,526.57
Total	**8.39**	**66.18**	**41.03**	**0.07**		**3.21**	**3.21**		**3.21**	**3.21**		**7,510.81**		**0.75**		**7,526.57**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	25.07	56.71	40.71	0.07		2.47	2.47		2.47	2.47	0.00	7,510.81		0.75		7,526.57
Total	**25.07**	**56.71**	**40.71**	**0.07**		**2.47**	**2.47**		**2.47**	**2.47**	**0.00**	**7,510.81**		**0.75**		**7,526.57**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	9.37	74.88	43.05	0.07		3.61	3.61		3.61	3.61		7,997.69		0.84		8,015.31
Total	**9.37**	**74.88**	**43.05**	**0.07**	**18.07**	**3.61**	**21.68**	**9.93**	**3.61**	**13.54**		**7,997.69**		**0.84**		**8,015.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.10	0.11	1.12	0.00	0.23	0.01	0.24	0.01	0.01	0.02		184.36		0.01		184.59
Total	**0.10**	**0.11**	**1.12**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**184.36**		**0.01**		**184.59**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.13	0.00	8.13	4.47	0.00	4.47						0.00
Off-Road	33.00	61.14	39.79	0.07		2.55	2.55		2.55	2.55	0.00	7,997.69		0.84		8,015.31
Total	**33.00**	**61.14**	**39.79**	**0.07**	**8.13**	**2.55**	**10.68**	**4.47**	**2.55**	**7.02**	**0.00**	**7,997.69**		**0.84**		**8,015.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.10	0.11	1.12	0.00	0.23	0.01	0.24	0.01	0.01	0.02		184.36		0.01		184.59
Total	**0.10**	**0.11**	**1.12**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**184.36**		**0.01**		**184.59**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.67	0.00	8.67	3.31	0.00	3.31						0.00
Off-Road	11.22	90.65	50.83	0.10		4.18	4.18		4.18	4.18		10,856.65		1.00		10,877.72
Total	**11.22**	**90.65**	**50.83**	**0.10**	**8.67**	**4.18**	**12.85**	**3.31**	**4.18**	**7.49**		**10,856.65**		**1.00**		**10,877.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.11	0.12	1.25	0.00	0.26	0.01	0.27	0.01	0.01	0.02		204.84		0.01		205.10
Total	**0.11**	**0.12**	**1.25**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**204.84**		**0.01**		**205.10**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.90	0.00	3.90	1.49	0.00	1.49						0.00
Off-Road	38.15	81.74	56.65	0.10		3.43	3.43		3.43	3.43	0.00	10,856.65		1.00		10,877.72
Total	**38.15**	**81.74**	**56.65**	**0.10**	**3.90**	**3.43**	**7.33**	**1.49**	**3.43**	**4.92**	**0.00**	**10,856.65**		**1.00**		**10,877.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.11	0.12	1.25	0.00	0.26	0.01	0.27	0.01	0.01	0.02		204.84		0.01		205.10
Total	**0.11**	**0.12**	**1.25**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**204.84**		**0.01**		**205.10**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.74	32.06	23.20	0.04		2.02	2.02		2.02	2.02		4,040.61		0.42		4,049.51
Total	**4.74**	**32.06**	**23.20**	**0.04**		**2.02**	**2.02**		**2.02**	**2.02**		**4,040.61**		**0.42**		**4,049.51**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.26	32.59	24.94	0.04		1.79	1.79		1.79	1.79	0.00	4,040.61		0.42		4,049.51
Total	**15.26**	**32.59**	**24.94**	**0.04**		**1.79**	**1.79**		**1.79**	**1.79**	**0.00**	**4,040.61**		**0.42**		**4,049.51**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.20	32.09	20.70	0.03		2.74	2.74		2.74	2.74		2,917.65		0.47		2,927.48
Paving	2.62					0.00	0.00		0.00	0.00						0.00
Total	**7.82**	**32.09**	**20.70**	**0.03**		**2.74**	**2.74**		**2.74**	**2.74**		**2,917.65**		**0.47**		**2,927.48**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	14.89	25.16	19.00	0.03		1.54	1.54		1.54	1.54	0.00	2,917.65		0.47		2,927.48
Paving	2.62					0.00	0.00		0.00	0.00						0.00
Total	**17.51**	**25.16**	**19.00**	**0.03**		**1.54**	**1.54**		**1.54**	**1.54**	**0.00**	**2,917.65**		**0.47**		**2,927.48**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24		281.19		0.04		282.03
Total	**0.45**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**		**281.19**		**0.04**		**282.03**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	1.43	2.42	1.83	0.00		0.15	0.15		0.15	0.15	0.00	281.19		0.04		282.03
Total	**1.43**	**2.42**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**	**0.00**	**281.19**		**0.04**		**282.03**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Gregory Canyon Admin Building

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	4	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Construction begins in 2014

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Grading - Assume export already accounted for

Construction Off-road Equipment Mitigation - Use of Tier 2 engines, Watering exposed areas and unpaved roads at least twice daily (55% PM reduction)

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	18.97	13.08	9.98	0.02	0.86	1.07	1.60	0.42	1.07	1.16	0.00	1,578.54	0.00	0.19	0.00	1,582.54
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	19.96	12.46	9.72	0.02	0.44	0.71	0.99	0.19	0.71	0.74	0.00	1,578.54	0.00	0.19	0.00	1,582.54
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.85	13.02	9.35	0.02		0.94	0.94		0.94	0.94		1,476.12		0.16		1,479.58
Total	**1.85**	**13.02**	**9.35**	**0.02**		**0.94**	**0.94**		**0.94**	**0.94**		**1,476.12**		**0.16**		**1,479.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.21	12.40	9.10	0.02		0.71	0.71		0.71	0.71	0.00	1,476.12		0.16		1,479.58
Total	**7.21**	**12.40**	**9.10**	**0.02**		**0.71**	**0.71**		**0.71**	**0.71**	**0.00**	**1,476.12**		**0.16**		**1,479.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.53	0.00	0.53	0.00	0.00	0.00						0.00
Off-Road	1.61	11.79	8.65	0.01		0.73	0.73		0.73	0.73		1,402.64		0.14		1,405.68
Total	**1.61**	**11.79**	**8.65**	**0.01**	**0.53**	**0.73**	**1.26**	**0.00**	**0.73**	**0.73**		**1,402.64**		**0.14**		**1,405.68**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.03	0.03	0.31	0.00	0.07	0.00	0.07	0.00	0.00	0.00		51.21		0.00		51.28
Total	**0.03**	**0.03**	**0.31**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**		**51.21**		**0.00**		**51.28**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.24	0.00	0.24	0.00	0.00	0.00						0.00
Off-Road	4.20	11.05	9.13	0.01		0.60	0.60		0.60	0.60	0.00	1,402.64		0.14		1,405.68
Total	**4.20**	**11.05**	**9.13**	**0.01**	**0.24**	**0.60**	**0.84**	**0.00**	**0.60**	**0.60**	**0.00**	**1,402.64**		**0.14**		**1,405.68**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.03	0.03	0.31	0.00	0.07	0.00	0.07	0.00	0.00	0.00		51.21		0.00		51.28
Total	**0.03**	**0.03**	**0.31**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**		**51.21**		**0.00**		**51.28**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.75	0.00	0.75	0.41	0.00	0.41						0.00
Off-Road	1.47	10.48	7.25	0.01		0.74	0.74		0.74	0.74		1,166.32		0.13		1,169.07
Total	**1.47**	**10.48**	**7.25**	**0.01**	**0.75**	**0.74**	**1.49**	**0.41**	**0.74**	**1.15**		**1,166.32**		**0.13**		**1,169.07**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.04	0.05	0.50	0.00	0.10	0.00	0.11	0.00	0.00	0.01		81.94		0.00		82.04
Total	**0.04**	**0.05**	**0.50**	**0.00**	**0.10**	**0.00**	**0.11**	**0.00**	**0.00**	**0.01**		**81.94**		**0.00**		**82.04**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.34	0.00	0.34	0.19	0.00	0.19						0.00
Off-Road	5.63	9.73	7.08	0.01		0.55	0.55		0.55	0.55	0.00	1,166.32		0.13		1,169.07
Total	**5.63**	**9.73**	**7.08**	**0.01**	**0.34**	**0.55**	**0.89**	**0.19**	**0.55**	**0.74**	**0.00**	**1,166.32**		**0.13**		**1,169.07**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.04	0.05	0.50	0.00	0.10	0.00	0.11	0.00	0.00	0.01		81.94		0.00		82.04
Total	**0.04**	**0.05**	**0.50**	**0.00**	**0.10**	**0.00**	**0.11**	**0.00**	**0.00**	**0.01**		**81.94**		**0.00**		**82.04**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.21	9.33	5.90	0.01		0.52	0.52		0.52	0.52		1,196.61		0.11		1,198.87
Total	**1.21**	**9.33**	**5.90**	**0.01**		**0.52**	**0.52**		**0.52**	**0.52**		**1,196.61**		**0.11**		**1,198.87**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	0.01	0.16	0.09	0.00	0.01	0.01	0.01	0.00	0.01	0.01		27.30		0.00		27.32
Worker	0.01	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00		10.24		0.00		10.26
Total	**0.02**	**0.17**	**0.15**	**0.00**	**0.02**	**0.01**	**0.02**	**0.00**	**0.01**	**0.01**		**37.54**		**0.00**		**37.58**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.63	9.49	6.92	0.01		0.47	0.47		0.47	0.47	0.00	1,196.61		0.11		1,198.87
Total	**4.63**	**9.49**	**6.92**	**0.01**		**0.47**	**0.47**		**0.47**	**0.47**	**0.00**	**1,196.61**		**0.11**		**1,198.87**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	0.01	0.16	0.09	0.00	0.01	0.01	0.01	0.00	0.01	0.01		27.30		0.00		27.32
Worker	0.01	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00		10.24		0.00		10.26
Total	**0.02**	**0.17**	**0.15**	**0.00**	**0.02**	**0.01**	**0.02**	**0.00**	**0.01**	**0.01**		**37.54**		**0.00**		**37.58**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.05	12.93	8.99	0.01		1.07	1.07		1.07	1.07		1,294.96		0.18		1,298.82
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.05**	**12.93**	**8.99**	**0.01**		**1.07**	**1.07**		**1.07**	**1.07**		**1,294.96**		**0.18**		**1,298.82**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.41	10.84	8.18	0.01		0.66	0.66		0.66	0.66	0.00	1,294.96		0.18		1,298.82
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**6.41**	**10.84**	**8.18**	**0.01**		**0.66**	**0.66**		**0.66**	**0.66**	**0.00**	**1,294.96**		**0.18**		**1,298.82**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	18.52					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24		281.19		0.04		282.03
Total	**18.97**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**		**281.19**		**0.04**		**282.03**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	18.52					0.00	0.00		0.00	0.00						0.00
Off-Road	1.43	2.42	1.83	0.00		0.15	0.15		0.15	0.15	0.00	281.19		0.04		282.03
Total	**19.95**	**2.42**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**	**0.00**	**281.19**		**0.04**		**282.03**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Gregory Canyon Equipment & Storage Area

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	24.5	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Utility Company**	San Diego Gas & Electric
Climate Zone	13	**Precipitation Freq (Days)**	40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Construction begins in 2014 and ends by 2015

Grading -

Construction Off-road Equipment Mitigation - Use of Tier 2 engines, Watering exposed areas and unpaved roads at least twice daily (55% PM reduction)

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	13.26	90.78	52.08	0.10	18.30	5.01	21.92	9.94	5.01	13.56	0.00	11,061.49	0.00	1.02	0.00	11,082.82
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	38.26	81.87	57.90	0.10	8.36	3.49	10.92	4.48	3.49	7.03	0.00	11,061.49	0.00	1.02	0.00	11,082.82
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.39	66.18	41.03	0.07		3.21	3.21		3.21	3.21		7,510.81		0.75		7,526.57
Total	**8.39**	**66.18**	**41.03**	**0.07**		**3.21**	**3.21**		**3.21**	**3.21**		**7,510.81**		**0.75**		**7,526.57**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	25.07	56.71	40.71	0.07		2.47	2.47		2.47	2.47	0.00	7,510.81		0.75		7,526.57
Total	**25.07**	**56.71**	**40.71**	**0.07**		**2.47**	**2.47**		**2.47**	**2.47**	**0.00**	**7,510.81**		**0.75**		**7,526.57**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	9.37	74.88	43.05	0.07		3.61	3.61		3.61	3.61		7,997.69		0.84		8,015.31
Total	**9.37**	**74.88**	**43.05**	**0.07**	**18.07**	**3.61**	**21.68**	**9.93**	**3.61**	**13.54**		**7,997.69**		**0.84**		**8,015.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.10	0.11	1.12	0.00	0.23	0.01	0.24	0.01	0.01	0.02		184.36		0.01		184.59
Total	**0.10**	**0.11**	**1.12**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**184.36**		**0.01**		**184.59**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.13	0.00	8.13	4.47	0.00	4.47						0.00
Off-Road	33.00	61.14	39.79	0.07		2.55	2.55		2.55	2.55	0.00	7,997.69		0.84		8,015.31
Total	**33.00**	**61.14**	**39.79**	**0.07**	**8.13**	**2.55**	**10.68**	**4.47**	**2.55**	**7.02**	**0.00**	**7,997.69**		**0.84**		**8,015.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.10	0.11	1.12	0.00	0.23	0.01	0.24	0.01	0.01	0.02		184.36		0.01		184.59
Total	**0.10**	**0.11**	**1.12**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**184.36**		**0.01**		**184.59**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.67	0.00	8.67	3.31	0.00	3.31						0.00
Off-Road	11.22	90.65	50.83	0.10		4.18	4.18		4.18	4.18		10,856.65		1.00		10,877.72
Total	**11.22**	**90.65**	**50.83**	**0.10**	**8.67**	**4.18**	**12.85**	**3.31**	**4.18**	**7.49**		**10,856.65**		**1.00**		**10,877.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.11	0.12	1.25	0.00	0.26	0.01	0.27	0.01	0.01	0.02		204.84		0.01		205.10
Total	**0.11**	**0.12**	**1.25**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**204.84**		**0.01**		**205.10**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.90	0.00	3.90	1.49	0.00	1.49						0.00
Off-Road	38.15	81.74	56.65	0.10		3.43	3.43		3.43	3.43	0.00	10,856.65		1.00		10,877.72
Total	**38.15**	**81.74**	**56.65**	**0.10**	**3.90**	**3.43**	**7.33**	**1.49**	**3.43**	**4.92**	**0.00**	**10,856.65**		**1.00**		**10,877.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.11	0.12	1.25	0.00	0.26	0.01	0.27	0.01	0.01	0.02		204.84		0.01		205.10
Total	**0.11**	**0.12**	**1.25**	**0.00**	**0.26**	**0.01**	**0.27**	**0.01**	**0.01**	**0.02**		**204.84**		**0.01**		**205.10**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.74	32.06	23.20	0.04		2.02	2.02		2.02	2.02		4,040.61		0.42		4,049.51
Total	**4.74**	**32.06**	**23.20**	**0.04**		**2.02**	**2.02**		**2.02**	**2.02**		**4,040.61**		**0.42**		**4,049.51**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.26	32.59	24.94	0.04		1.79	1.79		1.79	1.79	0.00	4,040.61		0.42		4,049.51
Total	**15.26**	**32.59**	**24.94**	**0.04**		**1.79**	**1.79**		**1.79**	**1.79**	**0.00**	**4,040.61**		**0.42**		**4,049.51**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

3.6 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24		281.19		0.04		282.03
Total	**0.45**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**		**281.19**		**0.04**		**282.03**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	1.43	2.42	1.83	0.00		0.15	0.15		0.15	0.15	0.00	281.19		0.04		282.03
Total	**1.43**	**2.42**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**	**0.00**	**281.19**		**0.04**		**282.03**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

3.7 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.20	32.09	20.70	0.03		2.74	2.74		2.74	2.74		2,917.65		0.47		2,927.48
Paving	2.79					0.00	0.00		0.00	0.00						0.00
Total	**7.99**	**32.09**	**20.70**	**0.03**		**2.74**	**2.74**		**2.74**	**2.74**		**2,917.65**		**0.47**		**2,927.48**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	14.89	25.16	19.00	0.03		1.54	1.54		1.54	1.54	0.00	2,917.65		0.47		2,927.48
Paving	2.79					0.00	0.00		0.00	0.00						0.00
Total	**17.68**	**25.16**	**19.00**	**0.03**		**1.54**	**1.54**		**1.54**	**1.54**	**0.00**	**2,917.65**		**0.47**		**2,927.48**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.01	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Gregory Canyon Maintenance Building

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Construction begins 2014

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Grading - Accounted for in other calculations.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	32.86	13.08	9.98	0.02	0.86	1.07	1.60	0.42	1.07	1.16	0.00	1,578.54	0.00	0.19	0.00	1,582.54
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	33.85	12.46	9.72	0.02	0.44	0.71	0.99	0.19	0.71	0.74	0.00	1,578.54	0.00	0.19	0.00	1,582.54
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.85	13.02	9.35	0.02		0.94	0.94		0.94	0.94		1,476.12		0.16		1,479.58
Total	**1.85**	**13.02**	**9.35**	**0.02**		**0.94**	**0.94**		**0.94**	**0.94**		**1,476.12**		**0.16**		**1,479.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.21	12.40	9.10	0.02		0.71	0.71		0.71	0.71	0.00	1,476.12		0.16		1,479.58
Total	**7.21**	**12.40**	**9.10**	**0.02**		**0.71**	**0.71**		**0.71**	**0.71**	**0.00**	**1,476.12**		**0.16**		**1,479.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.53	0.00	0.53	0.00	0.00	0.00						0.00
Off-Road	1.61	11.79	8.65	0.01		0.73	0.73		0.73	0.73		1,402.64		0.14		1,405.68
Total	**1.61**	**11.79**	**8.65**	**0.01**	**0.53**	**0.73**	**1.26**	**0.00**	**0.73**	**0.73**		**1,402.64**		**0.14**		**1,405.68**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.03	0.03	0.31	0.00	0.07	0.00	0.07	0.00	0.00	0.00		51.21		0.00		51.28
Total	**0.03**	**0.03**	**0.31**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**		**51.21**		**0.00**		**51.28**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.24	0.00	0.24	0.00	0.00	0.00						0.00
Off-Road	4.20	11.05	9.13	0.01		0.60	0.60		0.60	0.60	0.00	1,402.64		0.14		1,405.68
Total	**4.20**	**11.05**	**9.13**	**0.01**	**0.24**	**0.60**	**0.84**	**0.00**	**0.60**	**0.60**	**0.00**	**1,402.64**		**0.14**		**1,405.68**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.03	0.03	0.31	0.00	0.07	0.00	0.07	0.00	0.00	0.00		51.21		0.00		51.28
Total	**0.03**	**0.03**	**0.31**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**		**51.21**		**0.00**		**51.28**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.75	0.00	0.75	0.41	0.00	0.41						0.00
Off-Road	1.47	10.48	7.25	0.01		0.74	0.74		0.74	0.74		1,166.32		0.13		1,169.07
Total	**1.47**	**10.48**	**7.25**	**0.01**	**0.75**	**0.74**	**1.49**	**0.41**	**0.74**	**1.15**		**1,166.32**		**0.13**		**1,169.07**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.04	0.05	0.50	0.00	0.10	0.00	0.11	0.00	0.00	0.01		81.94		0.00		82.04
Total	**0.04**	**0.05**	**0.50**	**0.00**	**0.10**	**0.00**	**0.11**	**0.00**	**0.00**	**0.01**		**81.94**		**0.00**		**82.04**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.34	0.00	0.34	0.19	0.00	0.19						0.00
Off-Road	5.63	9.73	7.08	0.01		0.55	0.55		0.55	0.55	0.00	1,166.32		0.13		1,169.07
Total	**5.63**	**9.73**	**7.08**	**0.01**	**0.34**	**0.55**	**0.89**	**0.19**	**0.55**	**0.74**	**0.00**	**1,166.32**		**0.13**		**1,169.07**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.04	0.05	0.50	0.00	0.10	0.00	0.11	0.00	0.00	0.01		81.94		0.00		82.04
Total	**0.04**	**0.05**	**0.50**	**0.00**	**0.10**	**0.00**	**0.11**	**0.00**	**0.00**	**0.01**		**81.94**		**0.00**		**82.04**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.21	9.33	5.90	0.01		0.52	0.52		0.52	0.52		1,196.61		0.11		1,198.87
Total	**1.21**	**9.33**	**5.90**	**0.01**		**0.52**	**0.52**		**0.52**	**0.52**		**1,196.61**		**0.11**		**1,198.87**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	0.01	0.16	0.09	0.00	0.01	0.01	0.01	0.00	0.01	0.01		27.30		0.00		27.32
Worker	0.01	0.01	0.12	0.00	0.03	0.00	0.03	0.00	0.00	0.00		20.48		0.00		20.51
Total	**0.02**	**0.17**	**0.21**	**0.00**	**0.04**	**0.01**	**0.04**	**0.00**	**0.01**	**0.01**		**47.78**		**0.00**		**47.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.63	9.49	6.92	0.01		0.47	0.47		0.47	0.47	0.00	1,196.61		0.11		1,198.87
Total	**4.63**	**9.49**	**6.92**	**0.01**		**0.47**	**0.47**		**0.47**	**0.47**	**0.00**	**1,196.61**		**0.11**		**1,198.87**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	0.01	0.16	0.09	0.00	0.01	0.01	0.01	0.00	0.01	0.01		27.30		0.00		27.32
Worker	0.01	0.01	0.12	0.00	0.03	0.00	0.03	0.00	0.00	0.00		20.48		0.00		20.51
Total	**0.02**	**0.17**	**0.21**	**0.00**	**0.04**	**0.01**	**0.04**	**0.00**	**0.01**	**0.01**		**47.78**		**0.00**		**47.83**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.05	12.93	8.99	0.01		1.07	1.07		1.07	1.07		1,294.96		0.18		1,298.82
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.05**	**12.93**	**8.99**	**0.01**		**1.07**	**1.07**		**1.07**	**1.07**		**1,294.96**		**0.18**		**1,298.82**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	6.41	10.84	8.18	0.01		0.66	0.66		0.66	0.66	0.00	1,294.96		0.18		1,298.82
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**6.41**	**10.84**	**8.18**	**0.01**		**0.66**	**0.66**		**0.66**	**0.66**	**0.00**	**1,294.96**		**0.18**		**1,298.82**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.06	0.06	0.62	0.00	0.13	0.00	0.14	0.00	0.00	0.01		102.42		0.01		102.55
Total	**0.06**	**0.06**	**0.62**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**		**102.42**		**0.01**		**102.55**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	32.42					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24		281.19		0.04		282.03
Total	**32.87**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**		**281.19**		**0.04**		**282.03**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	32.42					0.00	0.00		0.00	0.00						0.00
Off-Road	1.43	2.42	1.83	0.00		0.15	0.15		0.15	0.15	0.00	281.19		0.04		282.03
Total	**33.85**	**2.42**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**	**0.00**	**281.19**		**0.04**		**282.03**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Gregory Canyon Paved Area

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	4.16	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - See Ancillary Structures.xls

Off-road Equipment -

Off-road Equipment - No building construction phase.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - Estimated 4.16 acres.

Construction Off-road Equipment Mitigation - Tier 2 engines; Watering exposed area and unpaved roads at least twice daily (55% reduction in PM)

Vehicle Trips -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	9.47	74.99	44.18	0.08	18.30	3.62	21.92	9.93	3.61	13.55	0.00	8,182.05	0.00	0.85	0.00	8,199.90
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	33.10	61.25	41.65	0.08	8.36	2.56	10.92	4.47	2.55	7.03	0.00	8,182.05	0.00	0.85	0.00	8,199.90
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.39	66.18	41.03	0.07		3.21	3.21		3.21	3.21		7,510.81		0.75		7,526.57
Total	**8.39**	**66.18**	**41.03**	**0.07**		**3.21**	**3.21**		**3.21**	**3.21**		**7,510.81**		**0.75**		**7,526.57**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.00	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	25.07	56.71	40.71	0.07		2.47	2.47		2.47	2.47	0.00	7,510.81		0.75		7,526.57
Total	**25.07**	**56.71**	**40.71**	**0.07**		**2.47**	**2.47**		**2.47**	**2.47**	**0.00**	**7,510.81**		**0.75**		**7,526.57**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.00	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.07	0.00	18.07	9.93	0.00	9.93						0.00
Off-Road	9.37	74.88	43.05	0.07		3.61	3.61		3.61	3.61		7,997.69		0.84		8,015.31
Total	**9.37**	**74.88**	**43.05**	**0.07**	**18.07**	**3.61**	**21.68**	**9.93**	**3.61**	**13.54**		**7,997.69**		**0.84**		**8,015.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.10	0.11	1.12	0.00	0.23	0.01	0.24	0.00	0.01	0.01		184.36		0.01		184.59
Total	**0.10**	**0.11**	**1.12**	**0.00**	**0.23**	**0.01**	**0.24**	**0.00**	**0.01**	**0.01**		**184.36**		**0.01**		**184.59**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.13	0.00	8.13	4.47	0.00	4.47						0.00
Off-Road	33.00	61.14	39.79	0.07		2.55	2.55		2.55	2.55	0.00	7,997.69		0.84		8,015.31
Total	**33.00**	**61.14**	**39.79**	**0.07**	**8.13**	**2.55**	**10.68**	**4.47**	**2.55**	**7.02**	**0.00**	**7,997.69**		**0.84**		**8,015.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.10	0.11	1.12	0.00	0.23	0.01	0.24	0.00	0.01	0.01		184.36		0.01		184.59
Total	**0.10**	**0.11**	**1.12**	**0.00**	**0.23**	**0.01**	**0.24**	**0.00**	**0.01**	**0.01**		**184.36**		**0.01**		**184.59**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.17	0.00	6.17	3.31	0.00	3.31						0.00
Off-Road	5.98	45.66	30.18	0.05		2.47	2.47		2.47	2.47		5,240.06		0.53		5,251.29
Total	**5.98**	**45.66**	**30.18**	**0.05**	**6.17**	**2.47**	**8.64**	**3.31**	**2.47**	**5.78**		**5,240.06**		**0.53**		**5,251.29**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.00	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.78	0.00	2.78	1.49	0.00	1.49						0.00
Off-Road	18.49	40.58	30.02	0.05		1.94	1.94		1.94	1.94	0.00	5,240.06		0.53		5,251.29
Total	**18.49**	**40.58**	**30.02**	**0.05**	**2.78**	**1.94**	**4.72**	**1.49**	**1.94**	**3.43**	**0.00**	**5,240.06**		**0.53**		**5,251.29**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.08	0.09	0.94	0.00	0.20	0.01	0.20	0.00	0.01	0.01		153.63		0.01		153.83
Total	**0.08**	**0.09**	**0.94**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**153.63**		**0.01**		**153.83**

3.5 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.97	24.85	16.79	0.03		2.07	2.07		2.07	2.07		2,400.73		0.36		2,408.23
Paving	0.54					0.00	0.00		0.00	0.00						0.00
Total	**4.51**	**24.85**	**16.79**	**0.03**		**2.07**	**2.07**		**2.07**	**2.07**		**2,400.73**		**0.36**		**2,408.23**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.11	0.12	1.25	0.00	0.26	0.01	0.27	0.00	0.01	0.01		204.84		0.01		205.10
Total	**0.11**	**0.12**	**1.25**	**0.00**	**0.26**	**0.01**	**0.27**	**0.00**	**0.01**	**0.01**		**204.84**		**0.01**		**205.10**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	11.86	20.05	15.14	0.03		1.23	1.23		1.23	1.23	0.00	2,400.73		0.36		2,408.23
Paving	0.54					0.00	0.00		0.00	0.00						0.00
Total	**12.40**	**20.05**	**15.14**	**0.03**		**1.23**	**1.23**		**1.23**	**1.23**	**0.00**	**2,400.73**		**0.36**		**2,408.23**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.11	0.12	1.25	0.00	0.26	0.01	0.27	0.00	0.01	0.01		204.84		0.01		205.10
Total	**0.11**	**0.12**	**1.25**	**0.00**	**0.26**	**0.01**	**0.27**	**0.00**	**0.01**	**0.01**		**204.84**		**0.01**		**205.10**

3.6 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.45	2.77	1.92	0.00		0.24	0.24		0.24	0.24		281.19		0.04		282.03
Total	**0.45**	**2.77**	**1.92**	**0.00**		**0.24**	**0.24**		**0.24**	**0.24**		**281.19**		**0.04**		**282.03**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	1.43	2.42	1.83	0.00		0.15	0.15		0.15	0.15	0.00	281.19		0.04		282.03
Total	**1.43**	**2.42**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**	**0.00**	**281.19**		**0.04**		**282.03**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	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
Total	**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**

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July 2, 2012

Mr. Bill Miller, Senior Project Manager
U.S. Army Corps of Engineers
Arizona Branch, Regulatory Division
3636 N. Central Avenue, Suite 900
Phoenix, AZ 85012-1936

Subject: Analysis of solid waste vehicle types and disposal facility trippage in North San Diego County

Dear Mr. Miller:

R3 Consulting Group, Inc. (R3) was engaged by the U.S. Army Corps of Engineers (Corps) to provide an analysis of solid waste vehicle types and disposal facility trippage for each North San Diego County jurisdiction in support of a Vehicle Miles Travelled (VMT) analysis. This letter report presents our findings.

Objectives

- To document the residential, commercial, and roll-off franchised disposal tonnage[1] for each jurisdiction in North San Diego County;
- To determine the transfer stations and disposal facilities that franchised disposal tonnage is delivered to; and
- To calculate the annual number of trips required to transport disposal tonnage to point-of-transfer, point-of-disposal, and point-of-transfer to point-of-disposal by vehicle type for each jurisdiction in North San Diego County.[2]

Background

R3 was previously engaged by the Corps to complete a Needs Assessment of the proposed Gregory Canyon Landfill (GCL). The specific goal of the Needs Assessment was to provide the Corps with an independent review to address if a new regional landfill is warranted in the general vicinity of the proposed GCL site. R3 was subsequently contracted by the Corps to conduct a cost of transfer and transport analysis of alternative disposal sites to the proposed GCL. R3's current engagement with the Corps, and the focus of this letter report, is to calculate the annual number of trips to point-of-transfer, point-of-disposal, and point-of-transfer to point-of-disposal by vehicle type for each North San Diego County jurisdiction.

Approach

R3 contacted the following North San Diego County jurisdictions:

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1 "Franchised disposal tonnage" refers to disposal tonnage that is collected and transported by a jurisdiction's franchised hauler. Therefore, this does not include any tonnage that is self-hauled to a transfer station or landfill by individuals within a given jurisdiction.

2 For the purposes of this letter report, the term "transfer station" (or "TS") is synonymous with "point-of-transfer," and the term "landfill" is synonymous with "point-of-disposal."

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- City of Del Mar
- City of Encinitas
- City of Escondido
- City of Oceanside
- City of Poway
- City of San Marcos
- City of Solana Beach
- City of Vista
- San Diego County

Each of the above jurisdictions was surveyed to obtain information including, but not limited to the following:

- Total franchised residential, commercial, and roll-off disposal tons collected;
- Transfer stations and disposal facilities that franchised disposal tonnage is delivered to; and
- Franchised hauler vehicle specifications (i.e., average vehicle load weight, fuel type used, etc.).

In addition, R3 contacted Waste Management, Inc. (WM) and EDCO Disposal (EDCO), the two franchised haulers serving the North San Diego County jurisdictions, to obtain any information that was unavailable from jurisdictions, as well as to confirm any information that was available.

Jurisdictions – Franchised Disposal Tonnages

R3 obtained 2010 franchised tonnage information from Carlsbad and Vista; however, franchised tonnage data for other jurisdictions was not made available. To estimate each other jurisdiction's franchised disposal tonnage as a percent of total tons disposed, R3 used the data made available by Carlsbad and Vista to establish an average percent of franchised waste. This value was then applied to each jurisdiction's 3-year average disposal tonnage, as provided in R3's Needs Assessment, to calculate the total 3-year average franchised disposal tonnage for each North San Diego County jurisdiction. This was done to eliminate excess disposal tonnage reported by CalRecycle due to non-franchised waste disposal, and to ensure the number of annual trips completed by franchised haulers in each jurisdiction is not overestimated.

Jurisdictions – Path Determination

R3 determined the percentage of each jurisdiction's franchised disposal tonnage travelling to each transfer station and disposal facility based on 2010 CalRecycle Disposal Reporting System data, County-provided transfer station usage data[3], and information provided by the jurisdictions and/or WM and EDCO. These percentages were then applied to the 3-year annual average franchised disposal tonnages for each jurisdiction to estimate the amount of franchised waste travelling to each transfer station and disposal facility from each jurisdiction. That tonnage was further classified as residential, commercial, and roll-off based on the average percentages of residential, commercial, and roll-off tonnage from the 2010 franchised tonnage information obtained from Carlsbad and Vista. Finally, those tonnages were divided by estimated average load weights for each vehicle type (residential, commercial, roll-off, and transfer trailer, as applicable) to determine the annual number of loads travelling to each facility from each jurisdiction.

For purposes of this analysis, it is assumed that each "load" of solid waste transported by a collection vehicle or transfer trailer represents one "trip." It is also assumed that all loads taken directly from a jurisdiction to a transfer station or landfill (i.e., trips to point-of-transfer and point-of-disposal locations) are transported by the collection vehicles servicing residential, commercial and roll-off operations, and

[3] San Diego County Recycling Specialist, Stephanie Ewalt, provided R3 with spreadsheets detailing the disposal tonnage travelling from jurisdictions to point-of-transfer, and from point-of-transfer to point-of-disposal for 2010.

any loads taken from a transfer station to landfill (i.e., loads taken from point-of-transfer to point-of-disposal locations) are transported by transfer trailers.

Unincorporated County – Franchised Disposal Tonnages

There is no exclusive franchised hauler in the Unincorporated San Diego County. Instead, there are many haulers that openly compete for business and are not confined to specific operating zones. As such, R3 was unable to obtain information on the disposal paths taken by individual haulers operating in Unincorporated North San Diego County. In order to estimate the loads travelling to each facility for the Unincorporated North San Diego County, R3 began by adjusting the Unincorporated County's 3-year average disposal tonnage to remove all military waste travelling to the San Onofre and Las Pulgas landfills.[4]

After removing the San Onofre and Las Pulgas landfill disposal tonnages, R3 multiplied the adjusted Unincorporated San Diego County 3-year average disposal tonnage by 41 percent[5] to isolate disposal tonnage attributable to the northern portion of Unincorporated San Diego County. Finally, the Unincorporated North San Diego County 3-year average disposal tonnage was multiplied by 84 percent[6] to estimate the 3-year average franchised disposal tonnage. This resulted in a total adjusted 3-year average franchised disposal tonnage of 193,534 for Unincorporated North San Diego County.

Unincorporated County – Path Determination

By comparing County-provided 2010 transfer station usage data with 2010 CalRecycle disposal figures, R3 was able to estimate that approximately 71 percent of unincorporated County waste is routed through a transfer station for disposal at a San Diego County landfill. R3 assumed the remaining 29 percent of Unincorporated County disposal tonnage was either direct-hauled to landfill or taken through a transfer station to an out-of-County landfill.

For the 71 percent of Unincorporated County franchised disposal tonnage utilizing transfer stations for in-County disposal, R3 assumed that this tonnage would only travel to transfer stations located within North San Diego County. Based on this assumption, R3 allocated the 71 percent among North San Diego County transfer stations using the percent distributions indicated by the County's transfer station usage data for Unincorporated San Diego County. Then, R3 used the same County-provided 2010 transfer station usage data to determine which landfills received waste from which transfer stations.

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[4] Waste disposed at the San Onofre and Las Pulgas landfills was removed from the 3-year average disposal tonnage value for the Unincorporated San Diego County because those disposal facilities only accept waste from Camp Pendleton and do not accept waste from commercial or public sectors.

[5] Per email correspondence with PCR Services Corporation, 7/2/2012: "The percentage of unincorporated County waste attributed to North County is based on the percentage of County population within the Pendelton DeLuz, Fallbrook, Pala-Pauma, North Mountain, Bonsall, Valley Center, North County Metro, Desert, and San Dieguito Community Planning Areas, as a percentage of the total population in unincorporated County areas. This percentage was calculated by PCR Services Corporation in June 2012; based on 2010 census data for the Community Planning Areas, as presented in the SANDAG, Profile Warehouse."

[6] Approximately 16 percent of waste disposed in the unincorporated County was self-hauled in 2010, per correspondence with San Diego County Recycling Specialist, Stephanie Ewalt, 4/12/2012. R3 assumed the remaining 84 percent represents the Unincorporated County's franchised waste.

R3 allocated the remaining 29 percent of unincorporated North San Diego County Waste to El Sobrante Landfill[7] (out-of-County), Otay Landfill, and Sycamore Sanitary Landfill based on the percentage distributions indicated by 2010 CalRecycle disposal figures.

Findings

The following table shows the 2007 through 2009 3-year average disposal tons (as reported in R3's Needs Assessment, with the exception of the adjusted figure for Unincorporated North San Diego County), the 3-year average franchised disposal tons calculated by R3, and the percentages used to determine residential, commercial, and roll-off portions of franchised waste for each jurisdiction.

TABLE 1
Franchised Waste Disposal by Jurisdiction

North San Diego County Jurisdiction	Franchised Hauler	3-Year Average Disposal Tons	3-Year Average Franchised Disposal Tons	% Franchised Waste[(1)]	Franchised Waste[(2)]		
					% Residential	% Commercial	% Roll-Off
Carlsbad	WM	120,924	91,606	75.75%	33.86%	45.00%	21.14%
Del Mar	WM	11,135	9,102	81.74%	29.78%	49.29%	20.94%
Encinitas	EDCO	69,256	56,608	81.74%	29.78%	49.29%	20.94%
Escondido	EDCO	138,751	113,412	81.74%	29.78%	49.29%	20.94%
Oceanside	WM	138,536	113,235	81.74%	29.78%	49.29%	20.94%
Poway	EDCO	60,935	49,807	81.74%	29.78%	49.29%	20.94%
San Marcos	EDCO	88,339	72,206	81.74%	29.78%	49.29%	20.94%
Solana Beach	WM/EDCO	15,895	12,992	81.74%	29.78%	49.29%	20.94%
Vista	EDCO	102,518	89,929	87.72%	25.69%	53.57%	20.74%
Unincorporated North San Diego County	Various	230,397	193,534	84.00%	29.78%	49.29%	20.94%
	TOTAL	976,688	802,431				

(1) % Franchised Waste values for Carlsbad and Vista are based on actual 2010 tonnages as reported by the franchised haulers operating in Carlsbad and Vista. The Unincorporated County value of 84.00% is based on correspondence with San Diego County Recycling Specialist, Stephanie Ewalt. For other jurisdictions, the percentages are estimated as the average of the Carlsbad and Vista values.

(2) % Residential, % Commercial, and % Roll-Off values for Carlsbad and Vista are based on actual 2010 tonnages as reported by the franchised haulers operating in Carlsbad and Vista. For other jurisdictions (including the Unincorporated County), the percentages are estimated as the average of the Carlsbad and Vista values.

Based on hauler contact, R3 assembled Tables 2 and 3 (below), which show typical specifications for residential and commercial vehicle types. For each table, R3 averaged the maximum load weights and multiplied by an average fill capacity of 85 percent to determine the average load weight for residential and commercial collection vehicles.

[7] All unincorporated waste travelling out-of-County to El Sobrante Landfill is routed through Waste Management's El Cajon transfer facility (i.e., Universal Refuse Removal Recycling and T.S.), per correspondence with San Diego County Recycling Specialist, Stephanie Ewalt, 4/26/2012.

TABLE 2
Residential Vehicle Specifications

Vehicle Specifications	Residential Collection Vehicles		
	Type 1	Type 2	Type 3
Fuel Type	CNG / CA Diesel	CNG / CA Diesel	CNG / CA Diesel
Number of Axles	3	3	4
Gross Vehicle Weight (pounds)	51,000	56,000	60,000
Tare Weight (pounds)	31,000	32,000	36,000
Maximum Load Weight (tons)	10	12	12

Average Maximum Load Weight (tons)	11.3
Average Fill Capacity	85%
Average Load Weight (tons)	9.6

TABLE 3
Commercial Vehicle Specifications

Vehicle Specifications	Commercial Collection Vehicles		
	Type 1	Type 2	Type 3
Fuel Type	CNG / CA Diesel	CNG / CA Diesel	CNG / CA Diesel
Number of Axles	3	4	4
Gross Vehicle Weight (pounds)	56,000	60,000	62,000
Tare Weight (pounds)	32,000	34,000	34,000
Maximum Load Weight (tons)	12	13	14

Average Maximum Load Weight (tons)	13.0
Average Fill Capacity	85%
Average Load Weight (tons)	11.1

Specifications for roll-off container collection vehicles and transfer trailers were not made available; however, haulers reported average load weights of approximately 7.5 tons and 21.0 tons, respectively.Table 4, below, summarizes the average load weights and standard days of operation for vehicle types researched by R3.

TABLE 4
Average Load Weight and Standard Days of Operation by Vehicle Type

Vehicle Type	Average Load Weight	Standard Days of Operation						
		M	T	W	Th	F	Sa	Su
Residential	9.6	✓	✓	✓	✓	✓		
Commercial	11.1	✓	✓	✓	✓	✓	✓	
Roll-Off	7.5	✓	✓	✓	✓	✓	✓	
Transfer Trailer	21.0	Variable[(1)]						

[(1)] Transfer trailers operate on the same schedule as whichever transfer station operation they service (this is typically 5 or 6 days per week).

Based on County-provided data, as well as input from haulers and jurisdictions, R3 compiled Table 5, below, which shows the routes taken by franchised disposal tonnage for each jurisdiction. The percentage value listed next to each facility represents the estimated portion of the identified jurisdiction's franchised disposal tonnage travelling to that facility. Please note that a jurisdiction's franchised disposal tonnage may arrive at the same disposal destination by way of multiple transfer stations (e.g., Solana Beach, Vista, and Unincorporated North San Diego County).

TABLE 5
Franchised Waste Disposal Routes

Jurisdiction	Destination 1		Destination 2 (if applicable)	
	Name	% of Franchised Disposal Tons	Name	% of Franchised Disposal Tons
Carlsbad	Palomar Transfer Station	100%	Otay Landfill	100.0%
Del Mar	Palomar Transfer Station	47.1%	Otay Landfill	47.1%
	Escondido Resource Recovery	6.1%	Sycamore Sanitary Landfill	6.1%
	Sycamore Sanitary Landfill	27.7%		
	West Miramar Sanitary Landfill	19.1%		
Encinitas	Palomar Transfer Station	40.3%	Otay Landfill	40.3%
	Escondido Resource Recovery	59.7%	Sycamore Sanitary Landfill	59.7%
Escondido	Escondido Resource Recovery	100%	Sycamore Sanitary Landfill	100.0%
Oceanside	Palomar Transfer Station	31.5%	Otay Landfill	31.5%
	Waste Management of North County	68.5%	Prima Deshecha Sanitary Landfill	68.5%
Poway	Escondido Resource Recovery	44.4%	Sycamore Sanitary Landfill	44.4%
	Ramona MRF and Transfer Station	49.0%	Sycamore Sanitary Landfill	49.0%
	EDCO Station (La Mesa)	6.7%	Otay Landfill	5.6%
			Sycamore Sanitary Landfill	1.1%
San Marcos	Escondido Resource Recovery	100%	Sycamore Sanitary Landfill	100%
Solana Beach	Palomar Transfer Station	51.0%	Otay Landfill	51.0%
	EDCO Transfer Station	29.3%	Otay Landfill	29.3%
	Escondido Resource Recovery	6.3%	Sycamore Sanitary Landfill	6.3%
	EDCO Station (La Mesa)	13.5%	Otay Landfill	11.4%
			Sycamore Sanitary Landfill	2.2%
Vista	Palomar Transfer Station	7.2%	Otay Landfill	7.2%
	Escondido Resource Recovery	84.2%	Sycamore Sanitary Landfill	84.2%
	Fallbrook Recycling Facility	8.6%	Sycamore Sanitary Landfill	8.6%
Unincorporated North San Diego County	Palomar Transfer Station	10.2%	Otay Landfill	10.2%
	EDCO Transfer Station	2.2%	Otay Landfill	2.2%
	Escondido Resource Recovery	27.2%	Sycamore Sanitary Landfill	27.2%
	Ramona MRF and Transfer Station	14.9%	Sycamore Sanitary Landfill	14.9%
	Fallbrook Recycling Facility	16.5%	Sycamore Sanitary Landfill	16.5%
	Universal Refuse Removal Recycling and T.S.	2.3%	El Sobrante Landfill	2.3%
	Otay Landfill	10.4%		
	Sycamore Sanitary Landfill	16.2%		

Jurisdiction
Point-of-transfer (i.e., transfer station)
Point-of-disposal (i.e., landfill)

Tables 6 through 15, below, provide R3's estimated annual loads (i.e., trips) to point-of-transfer, point-of-disposal, and point-of-transfer to point-of-disposal by vehicle type for each North San Diego County jurisdiction. For reference, each table also displays the given jurisdiction's 3-year average disposal tons and 3-year average franchised disposal tons.

TABLES 6 – 8
Annual Loads by Vehicle Type

Jurisdiction: Carlsbad
Hauler: Waste Management

3-Year Average Disposal Tons: 120,924
3-Year Average Franchised Disposal Tons: 91,606

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Carlsbad	Palomar Transfer Station	100.0%	91,606	3,220	3,731	2,582	N/A	**9,532**
Palomar Transfer Station	Otay Landfill	100.0%	91,606	N/A	N/A	N/A	4,362	**4,362**

Jurisdiction: Del Mar
Hauler: Waste Management

3-Year Average Disposal Tons: 11,135
3-Year Average Franchised Disposal Tons: 9,102

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Del Mar	Palomar Transfer Station	47.1%	4,284	132	191	120	N/A	**443**
Palomar Transfer Station	Otay Landfill	47.1%	4,284	N/A	N/A	N/A	204	**204**
Del Mar	Escondido Resource Recovery	6.1%	557	17	25	16	N/A	**58**
Escondido Resource Recovery	Otay Landfill	6.1%	557	N/A	N/A	N/A	27	**27**
Unincorporated North San Diego County	Sycamore Sanitary Landfill	27.7%	2,522	78	112	70	N/A	**261**
Unincorporated North San Diego County	West Miramar Sanitary Landfill	19.1%	1,739	54	78	49	N/A	**180**

Jurisdiction: Encinitas
Hauler: EDCO

3-Year Average Disposal Tons: 69,256
3-Year Average Franchised Disposal Tons: 56,608

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Encinitas	Palomar Transfer Station	40.3%	22,818	705	1,018	637	N/A	**2,360**
Palomar Transfer Station	Otay Landfill	40.3%	22,818	N/A	N/A	N/A	1,087	**1,087**
Encinitas	Escondido Resource Recovery	59.7%	33,790	1,044	1,507	943	N/A	**3,495**
Escondido Resource Recovery	Otay Landfill	59.7%	33,790	N/A	N/A	N/A	1,609	**1,609**

TABLES 9 – 11
Annual Loads by Vehicle Type

Jurisdiction: Escondido
Hauler: EDCO

3-Year Average Disposal Tons	138,751
3-Year Average Franchised Disposal Tons	113,412

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Escondido	Escondido Resource Recovery	100.0%	113,412	3,506	5,059	3,166	N/A	**11,730**
Escondido Resource Recovery	Sycamore Sanitary Landfill	100.0%	113,412	N/A	N/A	N/A	5,401	**5,401**

Jurisdiction: Oceanside
Hauler: Waste Management

3-Year Average Disposal Tons	138,536
3-Year Average Franchised Disposal Tons	113,235

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Oceanside	Palomar Transfer Station	31.5%	35,648	1,102	1,590	995	N/A	**3,687**
Palomar Transfer Station	Otay Landfill	31.5%	35,648	N/A	N/A	N/A	1,698	**1,698**
Oceanside	Waste Management of North County	68.5%	77,588	2,398	3,461	2,166	N/A	**8,025**
Waste Management of North County	Prima Deshecha Sanitary Landfill	68.5%	77,588	N/A	N/A	N/A	3,695	**3,695**

Jurisdiction: Poway
Hauler: EDCO

3-Year Average Disposal Tons	60,935
3-Year Average Franchised Disposal Tons	49,807

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Poway	Escondido Resource Recovery	44.4%	22,093	683	985	617	N/A	**2,285**
Escondido Resource Recovery	Sycamore Sanitary Landfill	44.4%	22,093	N/A	N/A	N/A	1,052	**1,052**
Poway	Ramona MRF and Transfer Station	49.0%	24,400	754	1,088	681	N/A	**2,524**
Ramona MRF and Transfer Station	Sycamore Sanitary Landfill	49.0%	24,400	N/A	N/A	N/A	1,162	**1,162**
Poway	EDCO Station (La Mesa)	6.7%	3,314	102	148	93	N/A	**343**
EDCO Station (La Mesa)	Otay Landfill	5.6%	2,786	N/A	N/A	N/A	133	**133**
EDCO Station (La Mesa)	Sycamore Sanitary Landfill	1.1%	529	N/A	N/A	N/A	25	**25**

TABLES 12 – 14
Annual Loads by Vehicle Type

Jurisdiction: San Marcos
Hauler: EDCO

3-Year Average Disposal Tons: 88,339
3-Year Average Franchised Disposal Tons: 72,206

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
San Marcos	Escondido Resource Recovery	100.0%	72,206	2,232	3,221	2,016	N/A	**7,468**
Escondido Resource Recovery	Sycamore Sanitary Landfill	100.0%	72,206	N/A	N/A	N/A	3,438	**3,438**

Jurisdiction: Solana Beach
Hauler: EDCO / Waste Management

3-Year Average Disposal Tons: 15,895
3-Year Average Franchised Disposal Tons: 12,992

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Solana Beach	Palomar Transfer Station	51.0%	6,620	205	295	185	N/A	**685**
Palomar Transfer Station	Otay Landfill	51.0%	6,620	N/A	N/A	N/A	315	**315**
Solana Beach	EDCO Transfer Station	29.3%	3,801	117	170	106	N/A	**393**
EDCO Transfer Station	Otay Landfill	29.3%	3,801	N/A	N/A	N/A	181	**181**
Solana Beach	Escondido Resource Recovery	6.3%	817	25	36	23	N/A	**84**
Escondido Resource Recovery	Sycamore Sanitary Landfill	6.3%	817	N/A	N/A	N/A	39	**39**
Solana Beach	EDCO Station (La Mesa)	13.5%	1,755	54	78	49	N/A	**181**
EDCO Station (La Mesa)	Otay Landfill	11.4%	1,475	N/A	N/A	N/A	70	**70**
EDCO Station (La Mesa)	Sycamore Sanitary Landfill	2.2%	280	N/A	N/A	N/A	13	**13**

Jurisdiction: Vista
Hauler: EDCO

3-Year Average Disposal Tons: 102,518
3-Year Average Franchised Disposal Tons: 89,929

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Vista	Palomar Transfer Station	7.2%	6,482	173	314	179	N/A	**666**
Palomar Transfer Station	Otay Landfill	7.2%	6,482	N/A	N/A	N/A	309	**309**
Vista	Escondido Resource Recovery	84.2%	75,675	2,018	3,669	2,092	N/A	**7,779**
Escondido Resource Recovery	Sycamore Sanitary Landfill	84.2%	75,675	N/A	N/A	N/A	3,604	**3,604**
Vista	Fallbrook Recycling Facility	8.6%	7,771	207	377	215	N/A	**799**
Fallbrook Recycling Facility	Sycamore Sanitary Landfill	8.6%	7,771	N/A	N/A	N/A	370	**370**

TABLE 15
Annual Loads by Vehicle Type

Jurisdiction: Unincorporated North San Diego County
Hauler: Various

3-Year Average Disposal Tons	230,397
3-Year Average Franchised Disposal Tons	193,534

Loads Transported		Franchised Disposal Tonnage Transported		Annual Loads (Trips) by Vehicle Type				
From	To	%	Tons	Residential	Commercial	Roll-Off	Transfer Trailer	Total
Unincorporated North San Diego County	Palomar Transfer Station	10.2%	19,668	608	877	549	N/A	**2,034**
Palomar Transfer Station	Otay Landfill	10.2%	19,668	N/A	N/A	N/A	937	**937**
Unincorporated North San Diego County	EDCO Transfer Station	2.2%	4,312	133	192	120	N/A	**446**
EDCO Transfer Station	Otay Landfill	2.2%	4,312	N/A	N/A	N/A	205	**205**
Unincorporated North San Diego County	Escondido Resource Recovery	27.2%	52,703	1,629	2,351	1,471	N/A	**5,451**
Escondido Resource Recovery	Sycamore Sanitary Landfill	27.2%	52,703	N/A	N/A	N/A	2,510	**2,510**
Unincorporated North San Diego County	Ramona MRF and Transfer Station	14.9%	28,925	894	1,290	807	N/A	**2,992**
Ramona MRF and Transfer Station	Sycamore Sanitary Landfill	14.9%	28,925	N/A	N/A	N/A	1,377	**1,377**
Unincorporated North San Diego County	Fallbrook Recycling Facility	16.5%	31,966	988	1,426	892	N/A	**3,306**
Fallbrook Recycling Facility	Sycamore Sanitary Landfill	16.5%	31,966	N/A	N/A	N/A	1,522	**1,522**
Unincorporated North San Diego County	Universal Refuse Removal Recycling and T.S.	2.3%	4,370	135	195	122	N/A	**452**
Universal Refuse Removal Recycling and T.S.	El Sobrante Landfill	2.3%	4,370	N/A	N/A	N/A	208	**208**
Unincorporated North San Diego County	Otay Landfill	10.4%	20,178	624	900	563	N/A	**2,087**
Unincorporated North San Diego County	Sycamore Sanitary Landfill	16.2%	31,411	971	1,401	877	N/A	**3,249**

* * * * * * *

We appreciate the opportunity to provide assistance to PCR and the Corps. Should there be any questions or comments regarding this submittal, please do not hesitate to contact me by phone at (916) 782-7821, or by e-mail at rterwin@r3cgi.com.

Sincerely,

R3 CONSULTING GROUP, INC.

Richard Tagore-Erwin
Principal

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EDCO)	93,793	306	62	29	91	Transfer	91
Del Mar (EDCO)	9,319	30	6	3	9	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	Transfer	112
Oceanside (EDCO)	115,938	378	76	36	112	Transfer	112
Poway (EDCO)	50,996	166	34	16	49	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	Transfer	72
Solana Beach (EDCO)	13,302	43	9	4	13	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	Transfer	89
Unincorporated	198,154	645	109	52	161	See Below	161
Total	821,585	2,676	520	245	764		
U1	20,410	66	13	6	20	Transfer	20
U2	4,359	14	3	1	4	Transfer	4
U3	53,898	176	35	17	52	Transfer	52
U4	29,525	96	19	9	29	Transfer	29
U5	32,695	106	22	10	32	Transfer	32
U6	4,558	15	3	1	4	Transfer	4
U7	20,608	67	14	6	20	Transfer	20
U8	32,101	105	21	10	31	Transfer	31

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Transfer Station	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (WM)	Palomar Transfer Station	5.9	47.1	1,735	18,948	8,933	532,520
	Palomar Transfer Station	15.4	47.1	109	886	418	33,322
Del Mar (WM)	Escondido Resource Recovery	26.9	28.8	15	115	54	4,661
	Sycamore Sanitary Landfill	**21**	0	36	522	0	10,954
	West Miramar Sanitary Landfill	**12.4**	0	15	360	0	4,461
Encinitas (EDCO)	Palomar Transfer Station	8.5	47.1	472	4,720	2,225	144,917
	Escondido Resource Recovery	18	28.8	719	6,989	3,295	220,699
Escondido (EDCO)	Escondido Resource Recovery	1.4	28.8	1,144	23,458	11,059	351,340
Oceanside (WM)	Palomar Transfer Station	10.1	47.1	776	7,373	3,476	238,193
	Waste Management of North County	2.5	34.2	974	16,048	7,566	298,867
Poway (EDCO)	Escondido Resource Recovery	14.1	28.8	412	4,570	2,154	126,477
	Ramona MRF and Transfer Station	14.8	28.2	462	5,047	2,379	141,790
	EDCO Station (La Mesa)		19.2	67	686	272	20,435
		22.2	9	2		52	464
San Marcos (EDCO)	Escondido Resource Recovery	4.2	28.8	865	14,935	7,041	265,506
	Palomar Transfer Station	14.6	47.1	164	1,369	645	50,393
	EDCO Transfer Station	24.9	11.7	78	786	371	23,914
Solana Beach (WM)	Escondido Resource Recovery	17.5	28.8	17	169	80	5,250
	EDCO Station (La Mesa)		19.2	38	363	144	11,689
		24.6	9	1		27	246
Vista (EDCO)	Palomar Transfer Station	7	47.1	128	1,341	632	39,159
	Escondido Resource Recovery	12.6	28.8	1,335	15,653	7,379	409,747
	Fallbrook Recycling Facility	13.4	54	203	1,607	758	62,460

North San Diego County Jurisdiction	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	9.9 ton VMT	21 ton VMT
Carlsbad (WM)	18,948	8,933	111,793	420,727
Del Mar (WM)	1,883	472	32,159	21,239
Encinitas (EDCO)	11,709	5,520	165,923	199,692
Escondido (EDCO)	23,458	11,059	32,842	318,498
Oceanside (WM)	23,422	11,042	114,593	422,468
Poway (EDCO)	10,302	4,805	154,347	134,819
San Marcos (EDCO)	14,935	7,041	62,728	202,778
Solana Beach (WM)	2,687	1,240	51,452	40,039
Vista (EDCO)	18,601	8,769	228,152	283,214

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Transfer Station	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Unincorporated		**See Below**		2,999	33,534	13,841	920,794
Total				12,763	159,480	72,800	3,918,257
U1	Palomar Transfer Station	10.3	47.1	430	4,068	1,918	132,029
U2	EDCO Transfer Station	0.0	11.7	16	892	420	4,920
U3	Escondido Resource Recovery	13.5	28.8	963	10,901	5,139	295,488
U4	Ramona MRF and Transfer Station	0.0	28.2	259	5,983	2,821	79,540
U5	Fallbrook Recycling Facility	0.0	54	548	6,612	3,117	168,320
U6	Universl Refuse Removal Recycling and TS	32.3	89.3	219	904	426	67,276
U7	Otay Landfill	41.5	--	565	4,174	--	173,394
U8	Sycamore Sanitary Landfill	29.6	--	626	6,497	--	192,096

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.014	0.016	0.064	1.383	215.907	0.019	0.011	0.002	0.0436	0.0497	0.1798	1.1164	90.6	0.0019	0.0018	0.0008	0.06	0.07	0.24	2.50	307	0.021	0.013	0.003
Del Mar(EWM)	0.004	0.005	0.019	0.398	62.109	0.006	0.003	0.001	0.0043	0.0049	0.0179	0.1109	9.0	0.0002	0.0002	0.0001	0.01	0.01	0.04	0.51	71	0.006	0.003	0.001
Encinitas(EDCO)	0.021	0.024	0.096	2.052	320.449	0.029	0.016	0.003	0.0270	0.0307	0.1111	0.6899	56.0	0.0012	0.0011	0.0005	0.05	0.05	0.21	2.74	376	0.030	0.017	0.004
Escondido(EDCO)	0.004	0.005	0.019	0.406	63.428	0.006	0.003	0.001	0.0540	0.0615	0.2226	1.3822	112.2	0.0024	0.0022	0.0010	0.06	0.07	0.24	1.79	176	0.008	0.005	0.002
Oceanside(EWM)	0.015	0.017	0.066	1.417	221.314	0.020	0.011	0.002	0.0539	0.0614	0.2222	1.3800	112.0	0.0024	0.0022	0.0010	0.07	0.08	0.29	2.80	333	0.022	0.013	0.003
Poway(EDCO)	0.020	0.022	0.089	1.909	298.092	0.027	0.015	0.003	0.0237	0.0270	0.0978	0.6070	49.3	0.0011	0.0010	0.0005	0.04	0.05	0.19	2.52	347	0.028	0.016	0.003
San Marcos(EDCO)	0.008	0.009	0.036	0.776	121.147	0.011	0.006	0.001	0.0344	0.0391	0.1417	0.8800	71.4	0.0015	0.0014	0.0007	0.04	0.05	0.18	1.66	193	0.012	0.007	0.002
Solana Beach(EWM)	0.007	0.007	0.030	0.636	99.369	0.009	0.005	0.001	0.0062	0.0070	0.0255	0.1583	12.9	0.0003	0.0003	0.0001	0.01	0.01	0.06	0.79	112	0.009	0.005	0.001
Vista(EDCO)	0.029	0.033	0.132	2.822	440.631	0.039	0.022	0.004	0.0428	0.0487	0.1765	1.0960	89.0	0.0019	0.0018	0.0008	0.07	0.08	0.31	3.92	530	0.041	0.024	0.005

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.047	0.054	0.221	5.179	821.293	0.075	0.043	0.008	0.021	0.023	0.080	0.520	42.4	0.001	0.001	0.000	0.07	0.08	0.30	5.70	864	0.076	0.044	0.008
Del Mar(EWM)	0.002	0.003	0.011	0.261	41.460	0.004	0.002	0.000	0.001	0.001	0.004	0.027	2.2	0.000	0.000	0.000	0.00	0.00	0.02	0.29	44	0.004	0.002	0.000
Encinitas(EDCO)	0.022	0.026	0.105	2.458	389.814	0.035	0.020	0.004	0.013	0.014	0.050	0.322	26.2	0.001	0.001	0.000	0.04	0.04	0.15	2.78	416	0.036	0.021	0.004
Escondido(EDCO)	0.036	0.041	0.167	3.921	621.734	0.057	0.033	0.006	0.025	0.029	0.099	0.644	52.5	0.001	0.001	0.000	0.06	0.07	0.27	4.56	674	0.058	0.034	0.006
Oceanside(EWM)	0.048	0.054	0.222	5.200	824.690	0.075	0.043	0.008	0.025	0.029	0.099	0.643	52.4	0.001	0.001	0.000	0.07	0.08	0.32	5.84	877	0.076	0.045	0.008
Poway(EDCO)	0.015	0.017	0.071	1.660	263.177	0.024	0.014	0.003	0.011	0.013	0.043	0.280	22.8	0.001	0.001	0.000	0.03	0.03	0.11	1.94	286	0.025	0.014	0.003
San Marcos(EDCO)	0.023	0.026	0.106	2.496	395.839	0.036	0.021	0.004	0.016	0.018	0.063	0.410	33.4	0.001	0.001	0.000	0.04	0.04	0.17	2.91	429	0.037	0.022	0.004
Solana Beach(EWM)	0.005	0.005	0.021	0.493	78.160	0.007	0.004	0.001	0.003	0.003	0.011	0.072	5.9	0.000	0.000	0.000	0.01	0.01	0.03	0.57	84	0.007	0.004	0.001
Vista(EDCO)	0.032	0.036	0.149	3.486	552.857	0.050	0.029	0.005	0.020	0.023	0.079	0.511	41.6	0.001	0.001	0.000	0.05	0.06	0.23	4.00	595	0.051	0.030	0.006

Unincorporated Regions - Annual City-TS Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.005	0.006	0.024	0.516	80.533	0.007	0.004	0.001	0.0094	0.0107	0.0386	0.2397	19.5	0.0004	0.0004	0.0002	0.0147	0.0167	0.0626	0.7554	99.9929	0.0076	0.0044	0.0009
U2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0021	0.0023	0.0085	0.0526	4.3	0.0001	0.0001	0.0000	0.0021	0.0023	0.0085	0.0526	4.2667	0.0001	0.0001	0.0000
U3	0.019	0.021	0.085	1.824	284.828	0.025	0.014	0.003	0.0251	0.0286	0.1034	0.6423	52.1	0.0011	0.0010	0.0005	0.0438	0.0499	0.1885	2.4663	336.9754	0.0265	0.0153	0.0032
U4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0138	0.0157	0.0568	0.3525	28.6	0.0006	0.0006	0.0003	0.0138	0.0157	0.0568	0.3525	28.6201	0.0006	0.0006	0.0003
U5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0152	0.0173	0.0627	0.3896	31.6	0.0007	0.0006	0.0003	0.0152	0.0173	0.0627	0.3896	31.6286	0.0007	0.0006	0.0003
U6	0.004	0.004	0.017	0.361	56.431	0.005	0.003	0.001	0.0021	0.0024	0.0086	0.0533	4.3	0.0001	0.0001	0.0000	0.0058	0.0066	0.0254	0.4146	60.7552	0.0051	0.0029	0.0006
U7	0.022	0.025	0.100	2.145	334.878	0.030	0.017	0.003	0.0096	0.0109	0.0396	0.2459	20.0	0.0004	0.0004	0.0002	0.0316	0.0360	0.1396	2.3904	354.8433	0.0302	0.0172	0.0034
U8	0.024	0.028	0.111	2.376	370.996	0.033	0.019	0.004	0.0150	0.0170	0.0616	0.3828	31.1	0.0007	0.0006	0.0003	0.0393	0.0448	0.1724	2.7586	402.0754	0.0337	0.0192	0.0038

Unincorporated Regions - Annual TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.010	0.012	0.047	1.112	176.332	0.016	0.009	0.002	0.0044	0.0050	0.0172	0.1117	9.1	0.0003	0.0002	0.0001	0.0146	0.0166	0.0646	1.2236	185.4407	0.0163	0.0095	0.0018
U2	0.001	0.001	0.003	0.061	9.604	0.001	0.001	0.000	0.0010	0.0011	0.0038	0.0245	2.0	0.0001	0.0001	0.0000	0.0015	0.0017	0.0064	0.0851	11.6009	0.0009	0.0006	0.0001
U3	0.017	0.019	0.078	1.822	288.925	0.026	0.015	0.003	0.0118	0.0135	0.0462	0.2994	24.4	0.0007	0.0006	0.0002	0.0285	0.0324	0.1239	2.1213	313.3341	0.0270	0.0158	0.0030
U4	0.009	0.010	0.042	0.979	155.268	0.014	0.008	0.001	0.0065	0.0074	0.0254	0.1643	13.4	0.0004	0.0003	0.0001	0.0154	0.0176	0.0671	1.1434	168.6641	0.0145	0.0085	0.0016
U5	0.019	0.022	0.088	2.072	328.575	0.030	0.017	0.003	0.0072	0.0082	0.0280	0.1816	14.8	0.0004	0.0004	0.0001	0.0261	0.0297	0.1163	2.2535	343.3796	0.0303	0.0176	0.0033
U6	0.004	0.005	0.020	0.468	74.290	0.007	0.004	0.001	0.0010	0.0011	0.0038	0.0248	2.0	0.0001	0.0001	0.0000	0.0053	0.0060	0.0238	0.4933	76.3139	0.0068	0.0040	0.0007
U7	0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U8	0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (PWM)	0.13	0.14	0.55	8	1,170	0.097	0.057	0.011
Del Mar (PWM)	0.01	0.01	0.05	1	115	0.010	0.006	0.001
Encinitas (EDCO)	0.08	0.09	0.36	6	792	0.066	0.038	0.008
Escondido (EDCO)	0.12	0.14	0.51	6	850	0.066	0.039	0.008
Oceanside (PWM)	0.14	0.16	0.61	9	1,210	0.099	0.058	0.011
Poway (EDCO)	0.07	0.08	0.30	4	633	0.052	0.030	0.006
San Marcos (EDCO)	0.08	0.09	0.35	5	622	0.049	0.029	0.006
Solana Beach (PWM)	0.02	0.02	0.09	1	196	0.016	0.010	0.002
Vista (EDCO)	0.12	0.14	0.54	8	1,124	0.093	0.054	0.011
Unincorporated	0.26	0.29	1.12	17	2,418	0.200	0.116	0.023
Total	**1.03**	**1.18**	**4.47**	**65**	**9,131**	**0.748**	**0.437**	**0.087**

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (WM)	93,793	306	62	29	91	24	Direct	62
Del Mar (WM)	9,319	30	6	3	9	41	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	33	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	21	Direct	76
Oceanside (WM)	115,938	378	76	36	112	23	Direct	76
Poway (EDCO)	50,996	166	34	16	49	33	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	23	Direct	49
Solana Beach (WM)	13,302	43	9	4	13	39	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	15	Direct	61
Unincorporated	198,154	645	130	61	192	30	See Below	163
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	39.6	Transfer	12
U2	9,908	32	7	3	10	30	Transfer	10
U3	47,557	155	31	15	46	30	Transfer	46
U4	35,470	116	23	11	34	38	Transfer	34
U5	36,658	119	24	11	35	12.5	Direct	24
U6	17,834	58	12	6	17	16.3	Direct	12
U7	38,244	125	25	12	37	17.2	Direct	25

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EDCO)	3.5	19.7	1,487	18,948		456,647
Del Mar (EDCO)	15.4	29	178	1,883	888	54,732
Encinitas (EDCO)	8.5	29	846	11,709	5,520	259,604
Escondido (EDCO)	1.4	19.7	1,597	23,458		490,281
Oceanside (EDCO)	2.5	19.7	1,732	23,422		531,675
Poway (EDCO)	16.5	19.7	865	10,302	4,857	265,664
San Marcos (EDCO)	4.2	19.7	1,119	14,935		343,511
Solana Beach (EDCO)	14.6	29	247	2,687	1,267	75,974
Vista (EDCO)	14.6	19.7	921	18,601		282,737
Unincorporated	See Below		2,480	40,031	10,040	761,261
Total			11,473	165,977	22,571	3,522,087
U1	21.5	19.7	253	2,522	1,189	77,644
U2	12.5	14	125	2,002	944	38,230
U3	11.5	19.7	651	9,607	4,529	199,712
U4	5	37.2	526	7,166	3,378	161,491
U5	3	37.2	302	7,406		92,572
U6	12	14	191	3,603		58,726
U7	11	14	433	7,726		132,887

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.058	0.066	0.263	5.648	881.926	0.079	0.044	0.008	0.0436	0.0497	0.1798	1.1164	90.6394	0.0019	0.0018	0.0008	0.102	0.116	0.443	6.764	972.566	0.080	0.046	0.009
Escondido(EDCO)	0.062	0.071	0.283	6.064	946.884	0.084	0.048	0.009	0.0540	0.0615	0.2226	1.3822	112.2153	0.0024	0.0022	0.0010	0.116	0.132	0.505	7.446	1059.099	0.087	0.050	0.010
Oceanside(WM)	0.067	0.077	0.307	6.576	1026.828	0.091	0.052	0.010	0.0539	0.0614	0.2222	1.3800	112.0402	0.0024	0.0022	0.0010	0.121	0.138	0.529	7.956	1138.869	0.094	0.054	0.011
San Marcos(EDCO)	0.044	0.050	0.198	4.249	663.426	0.059	0.033	0.006	0.0344	0.0391	0.1417	0.8800	71.4441	0.0015	0.0014	0.0007	0.078	0.089	0.340	5.129	734.870	0.061	0.035	0.007
Vista(EDCO)	0.036	0.041	0.163	3.497	546.053	0.049	0.027	0.005	0.0428	0.0487	0.1765	1.0960	88.9801	0.0019	0.0018	0.0008	0.079	0.090	0.340	4.593	635.033	0.051	0.029	0.006

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(WM)	0.004	0.004	0.017	0.359	55.995	0.005	0.003	0.001	0.0043	0.0049	0.0179	0.1109	9.0060	0.0002	0.0002	0.0001	0.008	0.009	0.035	0.470	65.001	0.005	0.003	0.001
Encinitas(EDCO)	0.013	0.014	0.057	1.231	192.215	0.017	0.010	0.002	0.0270	0.0307	0.1111	0.6899	56.0107	0.0012	0.0011	0.0005	0.040	0.045	0.168	1.921	248.226	0.018	0.011	0.002
Poway(EDCO)	0.022	0.025	0.098	2.102	328.296	0.029	0.016	0.003	0.0237	0.0270	0.0978	0.6070	49.2814	0.0011	0.0010	0.0005	0.045	0.052	0.196	2.709	377.577	0.030	0.017	0.004
Solana Beach(WM)	0.005	0.006	0.023	0.485	75.774	0.007	0.004	0.001	0.0062	0.0070	0.0255	0.1583	12.8549	0.0003	0.0003	0.0001	0.011	0.013	0.048	0.644	88.629	0.007	0.004	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(WM)	0.00289398	0.003291189	0.01350522	0.316833684	50.2444259	0.00456794	0.002639	0.000479	0.0020	0.0023	0.0080	0.0517	4.2155	0.0001	0.0001	0.0000	0.0049	0.0056	0.0215	0.3685	54.4600	0.0047	0.0027	0.0005
Encinitas(EDCO)	0.01799849	0.020468867	0.08399294	1.970481344	312.4847793	0.02840938	0.01641	0.002981	0.0020	0.0023	0.0080	0.0517	4.2155	0.0001	0.0001	0.0000	0.0200	0.0228	0.0920	2.0222	316.7003	0.0285	0.0165	0.0030
Poway(EDCO)	0.01075763	0.012234173	0.05020229	1.177750042	186.7710968	0.01698019	0.009808	0.001782	0.0020	0.0023	0.0080	0.0517	4.2155	0.0001	0.0001	0.0000	0.0128	0.0146	0.0582	1.2295	190.9866	0.0171	0.0099	0.0018
Solana Beach(WM)	0.0041308	0.004697773	0.01927707	0.45224162	71.7178182	0.00652018	0.003766	0.000684	0.0020	0.0023	0.0080	0.0517	4.2155	0.0001	0.0001	0.0000	0.0062	0.0070	0.0273	0.5039	75.9333	0.0066	0.0039	0.0007

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U5	0.012	0.013	0.053	1.145	178.785	0.016	0.009	0.002	0.0170	0.0194	0.0703	0.4363	35.4260	0.0008	0.0007	0.0003	0.0288	0.0328	0.1236	1.5813	214.2107	0.0167	0.0097	0.0020
U6	0.007	0.008	0.034	0.726	113.417	0.010	0.006	0.001	0.0083	0.0094	0.0342	0.2123	17.2343	0.0004	0.0003	0.0002	0.0157	0.0179	0.0680	0.9386	130.6514	0.0105	0.0060	0.0012
U7	0.017	0.019	0.077	1.644	256.646	0.023	0.013	0.002	0.0178	0.0202	0.0733	0.4552	36.9579	0.0008	0.0007	0.0003	0.0346	0.0394	0.1499	2.0988	293.6038	0.0236	0.0136	0.0028

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.007	0.008	0.031	0.671	104.720	0.009	0.005	0.001	0.0058	0.0066	0.0239	0.1486	12.0640	0.0003	0.0002	0.0001	0.0127	0.0144	0.0552	0.8192	116.7835	0.0096	0.0055	0.0011
U2	0.003	0.004	0.014	0.309	48.320	0.004	0.002	0.000	0.0046	0.0052	0.0190	0.1179	9.5746	0.0002	0.0002	0.0001	0.0078	0.0089	0.0334	0.4274	57.8948	0.0045	0.0026	0.0005
U3	0.014	0.016	0.064	1.366	213.382	0.019	0.011	0.002	0.0221	0.0252	0.0912	0.5661	45.9580	0.0010	0.0009	0.0004	0.0361	0.0411	0.1549	1.9326	259.3400	0.0200	0.0116	0.0025
U4	0.005	0.005	0.021	0.443	69.195	0.006	0.003	0.001	0.0165	0.0188	0.0680	0.4222	34.2770	0.0007	0.0007	0.0003	0.0210	0.0240	0.0886	0.8653	103.4716	0.0069	0.0042	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.003	0.012	0.288	45.721	0.004	0.002	0.000	0.0027	0.0031	0.0107	0.0693	5.6469	0.0002	0.0001	0.0001	0.0054	0.0061	0.0230	0.3576	51.3681	0.0043	0.0025	0.0005
U2	0.001	0.002	0.007	0.163	25.787	0.002	0.001	0.000	0.0022	0.0025	0.0085	0.0550	4.4817	0.0001	0.0001	0.0000	0.0037	0.0042	0.0154	0.2176	30.2691	0.0025	0.0015	0.0003
U3	0.010	0.011	0.047	1.098	174.176	0.016	0.009	0.002	0.0104	0.0119	0.0407	0.2639	21.5121	0.0006	0.0006	0.0002	0.0205	0.0233	0.0875	1.3622	195.6879	0.0164	0.0097	0.0019
U4	0.014	0.016	0.066	1.547	245.305	0.022	0.013	0.002	0.0078	0.0089	0.0304	0.1968	16.0445	0.0004	0.0004	0.0001	0.0219	0.0249	0.0963	1.7436	261.3494	0.0228	0.0133	0.0025

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.102	0.116	0.443	6.764	973	0.080	0.046	0.009
Del Mar (EWM)	0.013	0.015	0.056	0.838	119	0.010	0.006	0.001
Encinitas (EDCO)	0.060	0.068	0.260	3.943	565	0.047	0.027	0.005
Escondido (EDCO)	0.116	0.132	0.505	7.446	1059	0.087	0.050	0.010
Oceanside (EWM)	0.121	0.138	0.529	7.956	1139	0.094	0.054	0.011
Poway (EDCO)	0.058	0.066	0.254	3.939	569	0.047	0.027	0.005
San Marcos (EDCO)	0.078	0.089	0.340	5.129	735	0.061	0.035	0.007
Solana Beach (EWM)	0.017	0.020	0.075	1.148	165	0.014	0.008	0.002
Vista (EDCO)	0.079	0.090	0.340	4.593	635	0.051	0.029	0.006
Unincorporated	0.208	0.237	0.896	12.344	1715	0.138	0.080	0.016
Total	**0.852**	**0.970**	**3.698**	**54**	**7673**	**0.628**	**0.362**	**0.073**

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	29.6	Direct	62
Del Mar (EWM)	9,319	30	6	3	9	47.9	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	38.7	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	25.4	Direct	76
Oceanside (EWM)	115,938	378	76	36	112	26.4	Direct	76
Poway (EDCO)	50,996	166	34	16	49	37.9	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	28.2	Direct	49
Solana Beach (EWM)	13,302	43	9	4	13	44.8	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	20.7	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	160
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	44.8	Transfer	12
U2	9,908	32	7	3	10	18.2	Direct	7
U3	47,557	155	31	15	46	35.3	Transfer	46
U4	35,470	116	23	11	34	43	Transfer	34
U5	36,658	119	24	11	35	6.7	Direct	24
U6	17,834	58	12	6	17	25.4	Direct	12
U7	38,244	125	25	12	37	25.7	Direct	25

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to GCLF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	24.9	1,827	18,948		560,861
Del Mar (EWM)	15.4	35.9	198	1,883	888	60,856
Encinitas (EDCO)	8.5	35.9	970	11,709	5,520	297,691
Escondido (EDCO)	1.4	25.1	1,941	23,458		595,844
Oceanside (EWM)	2.5	24.9	2,014	23,422		618,336
Poway (EDCO)	16.5	25.1	951	10,302	4,857	291,891
San Marcos (EDCO)	4.2	25.1	1,372	14,935		421,175
Solana Beach (EWM)	14.6	35.9	276	2,687	1,267	84,715
Vista (EDCO)	14.6	25.1	1,254	18,601		385,044
Unincorporated	See Below		2,815	40,031	9,096	864,182
Total			13,618	165,977	21,627	4,180,595
U1	21.5	24.9	273	2,522	1,189	83,826
U2	12.5	7.9	119	2,002		36,428
U3	11.5	25.1	730	9,607	4,529	224,169
U4	5	42.7	587	7,166	3,378	180,071
U5	3	42.7	162	7,406		49,619
U6	12	7.9	298	3,603		91,511
U7	11	7.9	647	7,726		198,558

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.071	0.081	0.323	6.937	1083.196	0.096	0.054	0.010	0.0436	0.0497	0.1798	1.1164	90.6394	0.0019	0.0018	0.0008	0.115	0.131	0.503	8.053	1173.835	0.098	0.056	0.011
Escondido (EDCO)	0.076	0.086	0.344	7.369	1150.758	0.102	0.058	0.011	0.0540	0.0615	0.2226	1.3822	112.2153	0.0024	0.0022	0.0010	0.130	0.148	0.566	8.752	1262.973	0.105	0.060	0.012
Oceanside (WM)	0.078	0.089	0.356	7.648	1194.197	0.106	0.060	0.011	0.0539	0.0614	0.2222	1.3800	112.0402	0.0024	0.0022	0.0010	0.132	0.151	0.579	9.028	1306.237	0.109	0.062	0.012
San Marcos (EDCO)	0.053	0.061	0.243	5.209	813.418	0.072	0.041	0.008	0.0344	0.0391	0.1417	0.8800	71.4441	0.0015	0.0014	0.0007	0.088	0.100	0.385	6.089	884.862	0.074	0.042	0.008
Vista (EDCO)	0.049	0.056	0.222	4.762	743.638	0.066	0.037	0.007	0.0428	0.0487	0.1765	1.0960	88.9801	0.0019	0.0018	0.0008	0.092	0.104	0.398	5.858	832.618	0.068	0.039	0.008

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.004	0.004	0.017	0.359	55.995	0.005	0.003	0.001	0.0043	0.0049	0.0179	0.1109	9.0060	0.0002	0.0002	0.0001	0.008	0.009	0.035	0.470	65.001	0.005	0.003	0.001
Encinitas (EDCO)	0.013	0.014	0.057	1.231	192.215	0.017	0.010	0.002	0.0270	0.0307	0.1111	0.6899	56.0107	0.0012	0.0011	0.0005	0.040	0.045	0.168	1.921	248.226	0.018	0.011	0.002
Poway (EDCO)	0.022	0.025	0.098	2.102	328.296	0.029	0.016	0.003	0.0237	0.0270	0.0978	0.6070	49.2814	0.0011	0.0010	0.0005	0.045	0.052	0.196	2.709	377.577	0.030	0.017	0.004
Solana Beach (WM)	0.005	0.006	0.023	0.485	75.774	0.007	0.004	0.001	0.0062	0.0070	0.0255	0.1583	12.8549	0.0003	0.0003	0.0001	0.011	0.013	0.048	0.644	88.629	0.007	0.004	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.004	0.004	0.017	0.392	62.199	0.006	0.003	0.001	0.0020	0.0023	0.0080	0.0517	4.2155	0.0001	0.0001	0.0000	0.006	0.006	0.025	0.444	66.415	0.006	0.003	0.001
Encinitas (EDCO)	0.022	0.025	0.104	2.439	386.835	0.035	0.020	0.004	0.0127	0.0145	0.0496	0.3216	26.2176	0.0007	0.0007	0.0002	0.035	0.040	0.154	2.761	413.052	0.036	0.021	0.004
Poway (EDCO)	0.014	0.016	0.064	1.501	237.967	0.022	0.012	0.002	0.0112	0.0127	0.0437	0.2829	23.0678	0.0006	0.0006	0.0002	0.025	0.028	0.108	1.784	261.035	0.022	0.013	0.002
Solana Beach (WM)	0.005	0.006	0.024	0.560	88.782	0.008	0.005	0.001	0.0029	0.0033	0.0114	0.0738	6.0172	0.0002	0.0002	0.0001	0.008	0.009	0.035	0.634	94.799	0.008	0.005	0.001

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U2	0.005	0.005	0.021	0.451	70.354	0.006	0.004	0.001	0.0046	0.0052	0.0190	0.1179	9.5746	0.0002	0.0002	0.0001	0.0092	0.0105	0.0400	0.5685	79.929	0.0065	0.0037	0.0008
U5	0.006	0.007	0.029	0.614	95.829	0.009	0.005	0.001	0.0170	0.0194	0.0703	0.4363	35.4260	0.0008	0.0007	0.0003	0.0233	0.0266	0.0989	1.0500	131.255	0.0093	0.0055	0.0012
U6	0.012	0.013	0.053	1.132	176.736	0.016	0.009	0.002	0.0083	0.0094	0.0342	0.2123	17.2343	0.0004	0.0003	0.0002	0.0199	0.0227	0.0869	1.3441	193.970	0.0161	0.0092	0.0018
U7	0.025	0.029	0.114	2.456	383.477	0.034	0.019	0.004	0.0178	0.0202	0.0733	0.4552	36.9579	0.0008	0.0007	0.0003	0.0430	0.0489	0.1878	2.9110	420.435	0.0349	0.0200	0.0040

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.007	0.008	0.031	0.671	104.720	0.009	0.005	0.001	0.0058	0.0066	0.0239	0.1486	12.0640	0.0003	0.0002	0.0001	0.0127	0.0144	0.0552	0.8192	117	0.0096	0.0055	0.0011
U3	0.014	0.016	0.064	1.366	213.382	0.019	0.011	0.002	0.0221	0.0252	0.0912	0.5661	45.9580	0.0010	0.0009	0.0004	0.0361	0.0411	0.1549	1.9326	259	0.0200	0.0116	0.0025
U4	0.005	0.005	0.021	0.443	69.195	0.006	0.003	0.001	0.0165	0.0188	0.0680	0.4222	34.2770	0.0007	0.0007	0.0003	0.0210	0.0240	0.0886	0.8653	103	0.0069	0.0042	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.004	0.016	0.364	57.790	0.005	0.003	0.001	0.0027	0.0031	0.0107	0.0693	5.6469	0.0002	0.0001	0.0001	0.0061	0.0069	0.0262	0.4337	63	0.0054	0.0032	0.0006
U3	0.013	0.015	0.060	1.399	221.919	0.020	0.012	0.002	0.0104	0.0119	0.0407	0.2639	21.5121	0.0006	0.0006	0.0002	0.0232	0.0264	0.1004	1.6632	243	0.0208	0.0122	0.0023
U4	0.016	0.018	0.076	1.776	281.573	0.026	0.015	0.003	0.0078	0.0089	0.0304	0.1968	16.0445	0.0004	0.0004	0.0001	0.0240	0.0273	0.1061	1.9723	298	0.0260	0.0152	0.0028

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.115	0.131	0.503	8.053	1174	0.098	0.056	0.011
Del Mar (WM)	0.014	0.016	0.059	0.913	131	0.011	0.006	0.001
Encinitas (EDCO)	0.075	0.085	0.322	4.682	661	0.054	0.032	0.006
Escondido (EDCO)	0.130	0.148	0.566	8.752	1263	0.105	0.060	0.012
Oceanside (WM)	0.132	0.151	0.579	9.028	1306	0.109	0.062	0.012
Poway (EDCO)	0.070	0.080	0.303	4.493	639	0.053	0.031	0.006
San Marcos (EDCO)	0.088	0.100	0.385	6.089	885	0.074	0.042	0.008
Solana Beach (WM)	0.019	0.022	0.083	1.277	183	0.015	0.009	0.002
Vista (EDCO)	0.092	0.104	0.398	5.858	833	0.068	0.039	0.008
Unincorporated	0.209	0.238	0.905	12.991	1830	0.149	0.087	0.017
Total	**0.943**	**1.074**	**4.104**	**62**	**8905**	**0.736**	**0.424**	**0.085**

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (WM)	93,793	306	62	29	91	12.8	Direct	62
Del Mar (WM)	9,319	30	6	3	9	29.0	Direct	6
Encinitas (EDCO)	57,959	189	38	18	56	21.9	Direct	38
Escondido (EDCO)	116,119	378	76	36	112	16.5	Direct	76
Oceanside (WM)	115,938	378	76	36	112	14.6	Direct	76
Poway (EDCO)	50,996	166	34	16	49	28.5	Direct	34
San Marcos (EDCO)	73,930	241	49	23	72	10.4	Direct	49
Solana Beach (WM)	13,302	43	9	4	13	28.0	Direct	9
Vista (EDCO)	92,076	300	61	29	89	4.7	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	145
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	33	Transfer	12
U2	9,908	32	7	3	10	25.5	Direct	7
U3	47,557	155	31	15	46	20.3	Direct	31
U4	35,470	116	23	11	34	34	Transfer	34
U5	36,658	119	24	11	35	14	Direct	24
U6	17,834	58	12	6	17	19.4	Direct	12
U7	38,244	125	25	12	37	6.1	Direct	25

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EWM)	3.5	11.2	790	18,948		242,535
Del Mar (EWM)	15.4	12.1	178	1,883		54,598
Encinitas (EDCO)	8.5	12.1	835	11,709		256,426
Escondido (EDCO)	1.4	16.6	1,261	23,458		387,064
Oceanside (EWM)	2.5	11.2	1,114	23,422		341,958
Poway (EDCO)	16.5	16.6	956	10,302		293,613
San Marcos (EDCO)	4.2	16.6	506	14,935		155,327
Solana Beach (EWM)	14.6	12.1	245	2,687		75,244
Vista (EDCO)	14.6	16.6	285	18,601		87,425
Unincorporated	See Below		2,230	40,031	18,872	684,656
Total			8,400	165,977	18,872	2,578,846
U1	21.5	11.2	220	2,522	1,189	67,538
U2	12.5	13.8	166	2,002		51,040
U3	11.5	16.6	635	9,607		195,031
U4	5	33.9	490	7,166	3,378	150,344
U5	3	33.9	338	7,406		103,680
U6	12	13.8	228	3,603		69,894
U7	11	13.8	154	7,726		47,129

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.031	0.035	0.140	3.000	468.409	0.042	0.024	0.004	0.0436	0.0497	0.1798	1.1164	90.6	0.0019	0.0018	0.0008	0.074	0.085	0.320	4.116	559.048	0.044	0.025	0.005
Del Mar(WM)	0.007	0.008	0.031	0.675	105.445	0.009	0.005	0.001	0.0043	0.0049	0.0179	0.1109	9.0	0.0002	0.0002	0.0001	0.011	0.013	0.049	0.786	114.451	0.010	0.005	0.001
Encinitas(EDCO)	0.033	0.037	0.148	3.171	495.237	0.044	0.025	0.005	0.0270	0.0307	0.1111	0.6899	56.0	0.0012	0.0011	0.0005	0.059	0.068	0.259	3.861	551.248	0.045	0.026	0.005
Escondido(EDCO)	0.049	0.056	0.223	4.787	747.540	0.067	0.038	0.007	0.0540	0.0615	0.2226	1.3822	112.2	0.0024	0.0022	0.0010	0.103	0.117	0.446	6.169	859.755	0.069	0.040	0.008
Oceanside(WM)	0.043	0.049	0.197	4.229	660.427	0.059	0.033	0.006	0.0539	0.0614	0.2222	1.3800	112.0	0.0024	0.0022	0.0010	0.097	0.111	0.419	5.609	772.467	0.061	0.035	0.007
Poway(EDCO)	0.037	0.042	0.169	3.631	567.057	0.050	0.028	0.005	0.0237	0.0270	0.0978	0.6070	49.3	0.0011	0.0010	0.0005	0.061	0.069	0.267	4.238	616.338	0.052	0.029	0.006
San Marcos(EDCO)	0.020	0.022	0.090	1.921	299.984	0.027	0.015	0.003	0.0344	0.0391	0.1417	0.8800	71.4	0.0015	0.0014	0.0007	0.054	0.062	0.231	2.801	371.428	0.028	0.016	0.004
Solana Beach(WM)	0.010	0.011	0.043	0.931	145.320	0.013	0.007	0.001	0.0062	0.0070	0.0255	0.1583	12.9	0.0003	0.0003	0.0001	0.016	0.018	0.069	1.089	158.175	0.013	0.008	0.002
Vista(EDCO)	0.011	0.013	0.050	1.081	168.845	0.015	0.008	0.002	0.0428	0.0487	0.1765	1.0960	89.0	0.0019	0.0018	0.0008	0.054	0.061	0.227	2.177	257.825	0.017	0.010	0.002

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U2	0.006	0.007	0.029	0.631	98.573	0.009	0.005	0.001	0.0046	0.0052	0.0190	0.1179	9.6	0.0002	0.0002	0.0001	0.0111	0.0126	0.0484	0.7492	108.148	0.0090	0.0051	0.0010
U3	0.025	0.028	0.112	2.412	376.666	0.034	0.019	0.004	0.0221	0.0252	0.0912	0.5661	46.0	0.0010	0.0009	0.0004	0.0468	0.0533	0.2036	2.9782	422.624	0.0345	0.0198	0.0040
U5	0.013	0.015	0.060	1.282	200.239	0.018	0.010	0.002	0.0170	0.0194	0.0703	0.4363	35.4	0.0008	0.0007	0.0003	0.0302	0.0344	0.1300	1.7187	235.665	0.0186	0.0108	0.0022
U6	0.009	0.010	0.040	0.864	134.987	0.012	0.007	0.001	0.0083	0.0094	0.0342	0.2123	17.2	0.0004	0.0003	0.0002	0.0172	0.0195	0.0745	1.0767	152.222	0.0124	0.0071	0.0014
U7	0.006	0.007	0.027	0.583	91.020	0.008	0.005	0.001	0.0178	0.0202	0.0733	0.4552	37.0	0.0008	0.0007	0.0003	0.0238	0.0271	0.1005	1.0381	127.978	0.0089	0.0053	0.0012

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.0068735	0.00782982	0.0312595	0.670614966	104.7195155	0.00932406	0.00526	0.000999	0.0058	0.0066	0.0239	0.1486	12.1	0.0003	0.0002	0.0001	0.0127	0.0144	0.0552	0.8192	117	0.0096	0.0055	0.0011
U4	0.00454174	0.00517363	0.020655	0.443115832	69.19451187	0.00616097	0.003475	0.00066	0.0165	0.0188	0.0680	0.4222	34.3	0.0007	0.0007	0.0003	0.0210	0.0240	0.0886	0.8653	103	0.0069	0.0042	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00149719	0.00170268	0.0069869	0.163912609	25.99374799	0.00236321	0.001365	0.000248	0.0027	0.0031	0.0107	0.0693	5.6	0.0002	0.0001	0.0001	0.0042	0.0048	0.0177	0.2332	32	0.0025	0.0015	0.0003
U4	0.01287568	0.01464293	0.0600865	1.4096345	223.5440223	0.02032338	0.01174	0.002133	0.0078	0.0089	0.0304	0.1968	16.0	0.0004	0.0004	0.0001	0.0207	0.0235	0.0905	1.6064	240	0.0208	0.0122	0.0023

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.074	0.085	0.320	4.116	559	0.044	0.025	0.005
Del Mar (WM)	0.011	0.013	0.049	0.786	114	0.010	0.005	0.001
Encinitas (EDCO)	0.059	0.068	0.259	3.861	551	0.045	0.026	0.005
Escondido (EDCO)	0.103	0.117	0.446	6.169	860	0.069	0.040	0.008
Oceanside (WM)	0.097	0.111	0.419	5.609	772	0.061	0.035	0.007
Poway (EDCO)	0.061	0.069	0.267	4.238	616	0.052	0.029	0.006
San Marcos (EDCO)	0.054	0.062	0.231	2.801	371	0.028	0.016	0.004
Solana Beach (WM)	0.016	0.018	0.069	1.089	158	0.013	0.008	0.002
Vista (EDCO)	0.054	0.061	0.227	2.177	258	0.017	0.010	0.002
Unincorporated	0.188	0.214	0.809	11.085	1538	0.123	0.071	0.015
Total	**0.718**	**0.817**	**3.096**	**42**	**5799**	**0.462**	**0.267**	**0.055**

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (WM)	93,793	306	62	29	91	17.9	Direct	62
Del Mar (WM)	9,319	30	6	3	9	34.0	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	27.0	Direct	38
Escondido (EDCO)	116,119	378	76	36	112	11.5	Direct	76
Oceanside (WM)	115,938	378	76	36	112	19.6	Direct	76
Poway (EDCO)	50,996	166	34	16	49	24.6	Direct	34
San Marcos (EDCO)	73,930	241	49	23	72	6.5	Direct	49
Solana Beach (WM)	13,302	43	9	4	13	33.0	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	8.9	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	137
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	38.5	Transfer	12
U2	9,908	32	7	3	10	35.5	Transfer	10
U3	47,557	155	31	15	46	22.2	Direct	31
U4	35,470	116	23	11	34	30	Direct	23
U5	36,658	119	24	11	35	23.9	Direct	24
U6	17,834	58	12	6	17	20.7	Direct	12
U7	38,244	125	25	12	37	7.9	Direct	25

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EDCO)	3.5	18.7	1,105	18,948		339,169
Del Mar (EDCO)	15.4	13.5	133	1,883	888	40,975
Encinitas (EDCO)	8.5	13.5	1,030	11,709		316,141
Escondido (EDCO)	1.4	13.1	879	23,458		269,772
Oceanside (EDCO)	2.5	18.7	1,495	23,422		459,068
Poway (EDCO)	16.5	13.1	826	10,302		253,434
San Marcos (EDCO)	4.2	13.1	316	14,935		97,079
Solana Beach (EDCO)	14.6	13.5	184	2,687	1,267	56,337
Vista (EDCO)	14.6	13.1	539	18,601		165,550
Unincorporated	See Below		2,763	40,031	2,133	848,358
Total			9,270	165,977	4,287	2,845,885
U1	21.5	18.7	249	2,522	1,189	76,455
U2	12.5	7.9	106	2,002	944	32,474
U3	11.5	13.1	695	9,607		213,285
U4	5	30.6	696	7,166		213,534
U5	3	30.6	577	7,406		176,997
U6	12	7.9	243	3,603		74,578
U7	11	7.9	199	7,726		61,035

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.043	0.049	0.196	4.195	655.041	0.058	0.033	0.006	0.0436	0.0497	0.1798	1.1164	90.6	0.0019	0.0018	0.0008	0.087	0.099	0.375	5.311	745.680	0.060	0.035	0.007
Encinitas (EDCO)	0.040	0.046	0.182	3.910	610.566	0.054	0.031	0.006	0.0270	0.0307	0.1111	0.6899	56.0	0.0012	0.0011	0.0005	0.067	0.076	0.293	4.600	666.577	0.056	0.032	0.006
Escondido (EDCO)	0.034	0.039	0.156	3.337	521.013	0.046	0.026	0.005	0.0540	0.0615	0.2226	1.3822	112.2	0.0024	0.0022	0.0010	0.088	0.100	0.378	4.719	633.228	0.049	0.028	0.006
Oceanside (WM)	0.058	0.066	0.265	5.678	886.601	0.079	0.045	0.008	0.0539	0.0614	0.2222	1.3800	112.0	0.0024	0.0022	0.0010	0.112	0.128	0.487	7.058	998.641	0.081	0.047	0.009
Poway (EDCO)	0.032	0.037	0.146	3.134	489.460	0.044	0.025	0.005	0.0237	0.0270	0.0978	0.6070	49.3	0.0011	0.0010	0.0005	0.056	0.064	0.244	3.741	538.741	0.045	0.026	0.005
San Marcos (EDCO)	0.012	0.014	0.056	1.201	187.490	0.017	0.009	0.002	0.0344	0.0391	0.1417	0.8800	71.4	0.0015	0.0014	0.0007	0.047	0.053	0.198	2.081	258.934	0.018	0.011	0.002
Vista (EDCO)	0.021	0.024	0.095	2.048	319.728	0.028	0.016	0.003	0.0428	0.0487	0.1765	1.0960	89.0	0.0019	0.0018	0.0008	0.064	0.073	0.272	3.143	408.708	0.030	0.018	0.004

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.004	0.004	0.017	0.359	55.995	0.005	0.003	0.001	0.0043	0.0049	0.0179	0.1109	9.0	0.0002	0.0002	0.0001	0.008	0.009	0.035	0.470	65.001	0.005	0.003	0.001
Solana Beach (WM)	0.005	0.006	0.023	0.485	75.774	0.007	0.004	0.001	0.0062	0.0070	0.0255	0.1583	12.9	0.0003	0.0003	0.0001	0.011	0.013	0.048	0.644	88.629	0.007	0.004	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.001	0.002	0.006	0.147	23.390	0.002	0.001	0.000	0.0020	0.0023	0.0080	0.0517	4.2	0.0001	0.0001	0.0000	0.0034	0.0039	0.0143	0.1992	27.6052	0.0022	0.0013	0.0003
Solana Beach (WM)	0.002	0.002	0.009	0.211	33.386	0.003	0.002	0.000	0.0029	0.0033	0.0114	0.0738	6.0	0.0002	0.0002	0.0001	0.0048	0.0055	0.0204	0.2843	39.4030	0.0032	0.0019	0.0004

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U3	0.027	0.031	0.123	2.638	411.920	0.037	0.021	0.004	0.0221	0.0252	0.0912	0.5661	46.0	0.0010	0.0009	0.0004	0.0492	0.0560	0.2141	3.2040	457.878	0.0377	0.0216	0.0044
U4	0.027	0.031	0.123	2.641	412.399	0.037	0.021	0.004	0.0165	0.0188	0.0680	0.4222	34.3	0.0007	0.0007	0.0003	0.0436	0.0496	0.1911	3.0632	446.676	0.0375	0.0214	0.0043
U5	0.022	0.026	0.102	2.189	341.836	0.030	0.017	0.003	0.0170	0.0194	0.0703	0.4363	35.4	0.0008	0.0007	0.0003	0.0395	0.0450	0.1723	2.6254	377.262	0.0312	0.0179	0.0036
U6	0.009	0.011	0.043	0.922	144.033	0.013	0.007	0.001	0.0083	0.0094	0.0342	0.2123	17.2	0.0004	0.0003	0.0002	0.0177	0.0202	0.0772	1.1347	161.267	0.0132	0.0076	0.0015
U7	0.008	0.009	0.035	0.755	117.878	0.010	0.006	0.001	0.0178	0.0202	0.0733	0.4552	37.0	0.0008	0.0007	0.0003	0.0255	0.0291	0.1085	1.2101	154.836	0.0113	0.0066	0.0015

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.007	0.008	0.031	0.671	104.720	0.009	0.005	0.001	0.0058	0.0066	0.0239	0.1486	12.1	0.0003	0.0002	0.0001	0.0127	0.0144	0.0552	0.8192	116.7835	0.0096	0.0055	0.0011
U2	0.003	0.004	0.014	0.309	48.320	0.004	0.002	0.000	0.0046	0.0052	0.0190	0.1179	9.6	0.0002	0.0002	0.0001	0.0078	0.0089	0.0334	0.4274	57.8948	0.0045	0.0026	0.0005

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.012	0.274	43.400	0.004	0.002	0.000	0.0027	0.0027	0.0027	0.0027	0.0	0.0027	0.0027	0.0027	0.0052	0.0056	0.0144	0.2764	43.4030	0.0067	0.0050	0.0032
U2	0.001	0.001	0.004	0.092	14.551	0.001	0.001	0.000	0.0022	0.0022	0.0022	0.0022	0.0	0.0022	0.0022	0.0022	0.0030	0.0031	0.0061	0.0939	14.5537	0.0035	0.0029	0.0023

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.087	0.099	0.375	5.311	746	0.060	0.035	0.007
Del Mar (WM)	0.011	0.013	0.049	0.669	93	0.007	0.004	0.001
Encinitas (EDCO)	0.067	0.076	0.293	4.600	666.577	0.056	0.032	0.006
Escondido (EDCO)	0.088	0.100	0.378	4.719	633	0.049	0.028	0.006
Oceanside (WM)	0.112	0.128	0.487	7.058	999	0.081	0.047	0.009
Poway (EDCO)	0.056	0.064	0.244	3.741	538.741	0.045	0.026	0.005
San Marcos (EDCO)	0.047	0.053	0.198	2.081	259	0.018	0.011	0.002
Solana Beach (WM)	0.016	0.018	0.068	0.928	128	0.010	0.006	0.001
Vista (EDCO)	0.064	0.073	0.272	3.143	409	0.030	0.018	0.004
Unincorporated	0.204	0.232	0.872	12.854	1831	0.155	0.091	0.022
Total	**0.752**	**0.856**	**3.237**	**45**	**6302**	**0.512**	**0.297**	**0.065**

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	55.8	Transfer	91
Del Mar (EWM)	9,319	30	6	3	9	41.6	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	47.5	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	51.7	Transfer	112
Oceanside (EWM)	115,938	378	76	36	112	59.2	Transfer	112
Poway (EDCO)	50,996	166	34	16	49	42.6	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	55.5	Transfer	72
Solana Beach (EWM)	13,302	43	9	4	13	42.8	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	62.0	Transfer	89
Unincorporated	198,154	645	130	61	192	30.0	See Below	192
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	78.6	Transfer	12
U2	9,908	32	7	3	10	87.1	Transfer	10
U3	47,557	155	31	15	46	48	Transfer	46
U4	35,470	116	23	11	34	50	Transfer	34
U5	36,658	119	24	11	35	75.6	Transfer	35
U6	17,834	58	12	6	17	62.3	Transfer	17
U7	38,244	125	25	12	37	60.9	Transfer	37

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EWM)	3.5	59.7	1,953	18,948	8,933	599,596
Del Mar (EWM)	15.4	56.9	259	1,883	888	79,495
Encinitas (EDCO)	8.5	56.9	1,347	11,709	5,520	413,610
Escondido (EDCO)	1.4	51.8	1,973	23,458	11,059	605,697
Oceanside (EWM)	2.5	59.7	2,338	23,422	11,042	717,745
Poway (EDCO)	16.5	51.8	1,373	10,302	4,857	421,566
San Marcos (EDCO)	4.2	51.8	1,392	14,935	7,041	427,447
Solana Beach (EWM)	14.6	56.9	363	2,687	1,267	111,319
Vista (EDCO)	14.6	51.8	2,364	18,601	8,769	725,817
Unincorporated	See Below		4,949	40,031	18,872	1,519,305
Total			18,311	165,977	78,246	5,621,597
U1	21.5	59.7	408	2,522	1,189	125,201
U2	12.5	76.9	318	2,002	944	97,581
U3	11.5	51.8	1,124	9,607	4,529	345,100
U4	5	51.6	684	7,166	3,378	210,135
U5	3	51.6	659	7,406	3,491	202,367
U6	12	76.9	566	3,603	1,698	173,845
U7	11	76.9	1,189	7,726	3,642	365,075

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.004	0.005	0.018	0.387	60.381	0.005	0.003	0.001	0.021	0.023	0.085	0.526	42.730	0.001	0.001	0.000	0.025	0.028	0.103	0.913	103.111	0.006	0.004	0.001
Del Mar(BWM)	0.002	0.002	0.008	0.169	26.398	0.002	0.001	0.000	0.002	0.002	0.008	0.052	4.246	0.000	0.000	0.000	0.004	0.004	0.016	0.221	30.643	0.002	0.001	0.000
Encinitas(EDCO)	0.006	0.007	0.027	0.580	90.616	0.008	0.005	0.001	0.013	0.014	0.052	0.325	26.405	0.001	0.001	0.000	0.019	0.021	0.079	0.906	117.021	0.009	0.005	0.001
Escondido(EDCO)	0.002	0.002	0.009	0.191	29.902	0.003	0.002	0.000	0.025	0.029	0.105	0.652	52.901	0.001	0.001	0.000	0.027	0.031	0.114	0.843	82.803	0.004	0.003	0.001
Oceanside(BWM)	0.003	0.004	0.016	0.341	53.312	0.005	0.003	0.001	0.025	0.029	0.105	0.651	52.819	0.001	0.001	0.000	0.029	0.033	0.121	0.992	106.131	0.006	0.004	0.001
Poway(EDCO)	0.010	0.012	0.046	0.991	154.768	0.014	0.008	0.001	0.011	0.013	0.046	0.286	23.233	0.000	0.000	0.000	0.021	0.024	0.092	1.277	178.001	0.014	0.008	0.002
San Marcos(EDCO)	0.004	0.004	0.017	0.366	57.112	0.005	0.003	0.001	0.016	0.018	0.067	0.415	33.681	0.001	0.001	0.000	0.020	0.023	0.084	0.781	90.793	0.006	0.004	0.001
Solana Beach(BWM)	0.002	0.003	0.011	0.229	35.722	0.003	0.002	0.000	0.003	0.003	0.012	0.075	6.060	0.000	0.000	0.000	0.005	0.006	0.023	0.303	41.782	0.003	0.002	0.000
Vista(EDCO)	0.016	0.018	0.074	1.583	247.263	0.022	0.012	0.002	0.020	0.023	0.083	0.517	41.948	0.001	0.001	0.000	0.036	0.041	0.157	2.100	289.211	0.023	0.013	0.003

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.060	0.068	0.280	6.564	1041.001	0.095	0.055	0.010	0.021	0.023	0.080	0.520	42.427	0.001	0.001	0.000	0.08	0.09	0.36	7.08	1,083.43	0.10	0.06	0.01
Del Mar(BWM)	0.006	0.006	0.026	0.622	98.583	0.009	0.005	0.001	0.002	0.002	0.008	0.052	4.216	0.000	0.000	0.000	0.01	0.01	0.03	0.67	102.80	0.01	0.01	0.00
Encinitas(EDCO)	0.035	0.040	0.165	3.866	613.117	0.056	0.032	0.006	0.013	0.014	0.050	0.322	26.218	0.001	0.001	0.000	0.05	0.05	0.21	4.19	639.33	0.06	0.03	0.01
Escondido(EDCO)	0.064	0.073	0.301	7.052	1118.258	0.102	0.059	0.011	0.025	0.029	0.099	0.644	52.526	0.001	0.001	0.000	0.09	0.10	0.40	7.70	1,170.78	0.10	0.06	0.01
Oceanside(BWM)	0.074	0.084	0.346	8.114	1286.791	0.117	0.068	0.012	0.025	0.029	0.099	0.643	52.444	0.001	0.001	0.000	0.10	0.11	0.45	8.76	1,339.24	0.12	0.07	0.01
Poway(EDCO)	0.028	0.032	0.132	3.097	491.104	0.045	0.026	0.005	0.011	0.013	0.044	0.283	23.068	0.001	0.001	0.000	0.04	0.04	0.18	3.38	514.17	0.05	0.03	0.00
San Marcos(EDCO)	0.041	0.047	0.191	4.490	711.961	0.065	0.037	0.007	0.016	0.018	0.063	0.410	33.442	0.001	0.001	0.000	0.06	0.07	0.25	4.90	745.40	0.07	0.04	0.01
Solana Beach(BWM)	0.008	0.009	0.038	0.887	140.715	0.013	0.007	0.001	0.003	0.003	0.011	0.074	6.017	0.000	0.000	0.000	0.01	0.01	0.05	0.96	146.73	0.01	0.01	0.00
Vista(EDCO)	0.051	0.058	0.238	5.591	886.712	0.081	0.047	0.008	0.020	0.023	0.079	0.511	41.650	0.001	0.001	0.000	0.07	0.08	0.32	6.10	928.36	0.08	0.05	0.01

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.0068735	0.007829818	0.0312595	0.670614966	104.7195155	0.00932406	0.00526	0.000999	0.0058	0.0066	0.0239	0.1486	12.0640	0.0003	0.0002	0.0001	0.0127	0.0144	0.0552	0.8192	116.7835	0.0096	0.0055	0.0011
U2	0.00317161	0.003612873	0.01442391	0.30943843	48.32018986	0.00430235	0.002427	0.000461	0.0046	0.0052	0.0190	0.1179	9.5746	0.0002	0.0002	0.0001	0.0078	0.0089	0.0334	0.4274	57.8948	0.0045	0.0026	0.0005
U3	0.01400581	0.015954447	0.063696	1.366480108	213.3819584	0.01899919	0.010717	0.002036	0.0221	0.0252	0.0912	0.5661	45.9580	0.0010	0.0009	0.0004	0.0361	0.0411	0.1549	1.9326	259.3400	0.0200	0.0116	0.0025
U4	0.00454174	0.005173634	0.02065504	0.443115832	69.19451187	0.00616097	0.003475	0.00066	0.0165	0.0188	0.0680	0.4222	34.2770	0.0007	0.0007	0.0003	0.0210	0.0240	0.0886	0.8653	103.4716	0.0069	0.0042	0.0010
U5	0.00281639	0.003208231	0.01280843	0.274781326	42.90832859	0.00382049	0.002155	0.000409	0.0170	0.0194	0.0703	0.4363	35.4260	0.0008	0.0007	0.0003	0.0199	0.0226	0.0831	0.7111	78.3343	0.0046	0.0029	0.0007
U6	0.00548054	0.006243044	0.02492452	0.534709608	83.49728807	0.00743447	0.004194	0.000797	0.0083	0.0094	0.0342	0.2123	17.2343	0.0004	0.0003	0.0002	0.0138	0.0157	0.0591	0.7470	100.7316	0.0078	0.0045	0.0010
U7	0.01077331	0.012272207	0.04899515	1.05110046	164.1340209	0.01461423	0.008244	0.001566	0.0178	0.0202	0.0733	0.4552	36.9579	0.0008	0.0007	0.0003	0.0286	0.0325	0.1223	1.5063	201.0919	0.0154	0.0090	0.0019

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00798054	0.009075909	0.03724252	0.873712747	138.5559603	0.01259674	0.007276	0.001322	0.0027	0.0031	0.0107	0.0693	5.6469	0.0002	0.0001	0.0001	0.0107	0.0122	0.0479	0.9430	144.2029	0.0128	0.0074	0.0014
U2	0.00815857	0.009278368	0.0380733	0.893202922	141.6467701	0.01287774	0.007439	0.001351	0.0022	0.0025	0.0085	0.0550	4.4817	0.0001	0.0001	0.0000	0.0103	0.0118	0.0466	0.9482	146.1285	0.0130	0.0076	0.0014
U3	0.02637901	0.029999655	0.12310203	2.887984065	457.9850836	0.04163745	0.024051	0.004369	0.0104	0.0119	0.0407	0.2639	21.5121	0.0006	0.0006	0.0002	0.0368	0.0419	0.1638	3.1518	479.4972	0.0422	0.0246	0.0046
U4	0.01959838	0.022288354	0.09145911	2.145638354	340.2616977	0.0309347	0.017869	0.003246	0.0078	0.0089	0.0304	0.1968	16.0445	0.0004	0.0004	0.0001	0.0274	0.0312	0.1218	2.3424	356.3062	0.0314	0.0183	0.0034
U5	0.02025531	0.02303545	0.09452478	2.217559193	351.6671178	0.03197162	0.018468	0.003355	0.0080	0.0092	0.0314	0.2034	16.5823	0.0005	0.0004	0.0002	0.0283	0.0322	0.1259	2.4209	368.2494	0.0324	0.0189	0.0035
U6	0.01468542	0.016701063	0.06853195	1.60776526	254.9641863	0.02317992	0.01339	0.002432	0.0039	0.0045	0.0153	0.0989	8.0670	0.0002	0.0002	0.0001	0.0186	0.0212	0.0838	1.7067	263.0312	0.0234	0.0136	0.0025
U7	0.03149206	0.035814502	0.14696296	3.44776328	546.7565328	0.04970806	0.028713	0.005216	0.0084	0.0096	0.0327	0.2122	17.2993	0.0005	0.0004	0.0002	0.0399	0.0454	0.1797	3.6599	564.0559	0.0502	0.0292	0.0054

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.105	0.120	0.463	7.998	1186.539	0.102	0.060	0.011
Del Mar (WM)	0.012	0.013	0.051	0.895	133.442	0.012	0.007	0.001
Encinitas (EDCO)	0.067	0.076	0.294	5.093	756.355	0.065	0.038	0.007
Escondido (EDCO)	0.117	0.133	0.514	8.539	1253.587	0.107	0.063	0.012
Oceanside (WM)	0.128	0.146	0.566	9.750	1445.366	0.124	0.073	0.014
Poway (EDCO)	0.061	0.069	0.268	4.657	692.172	0.060	0.035	0.007
San Marcos (EDCO)	0.077	0.088	0.339	5.680	836.196	0.071	0.042	0.008
Solana Beach (WM)	0.016	0.019	0.072	1.265	188.515	0.016	0.009	0.002
Vista (EDCO)	0.108	0.123	0.474	8.202	1217.573	0.105	0.061	0.012
Unincorporated	0.312	0.355	1.366	22.182	3239.119	0.274	0.160	0.031
Total	**1.003**	**1.141**	**4.406**	**74**	**10949**	**0.936**	**0.546**	**0.104**

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	64.3	Transfer	91
Del Mar (EWM)	9,319	30	6	3	9	82.1	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	73.1	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	59.8	Transfer	112
Oceanside (EWM)	115,938	378	76	36	112	60.7	Transfer	112
Poway (EDCO)	50,996	166	34	16	49	72.1	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	61.6	Transfer	72
Solana Beach (EWM)	13,302	43	9	4	13	78.3	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	54.9	Transfer	89
Unincorporated	198,154	645	130	61	192	30.0	See Below	192
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	56.5	Transfer	12
U2	9,908	32	7	3	10	57.6	Transfer	10
U3	47,557	155	31	15	46	69.6	Transfer	46
U4	35,470	116	23	11	34	77	Transfer	34
U5	36,658	119	24	11	35	43.6	Transfer	35
U6	17,834	58	12	6	17	54.9	Transfer	17
U7	38,244	125	25	12	37	60.5	Transfer	37

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EDCO)	7	59.3	2,157	18,948	8,933	662,341
Del Mar (EDCO)	13	59.6	252	1,883	888	77,373
Encinitas (EDCO)	6.5	68.4	1,478	11,709	5,520	453,671
Escondido (EDCO)	1	59.6	2,223	23,458	11,059	682,573
Oceanside (EDCO)	2	59.3	2,285	23,422	11,042	701,617
Poway (EDCO)	13	59.6	1,379	10,302	4,857	423,391
San Marcos (EDCO)	6.5	68.4	1,885	14,935	7,041	578,678
Solana Beach (EDCO)	10.5	68.4	374	2,687	1,267	114,870
Vista (EDCO)	10.5	44.8	1,916	18,601	8,769	588,168
Unincorporated	See Below		4,872	40,031	18,872	1,495,635
Total			18,822	165,977	78,246	5,778,318
U1	19	44.8	330	2,522	1,189	101,181
U2	7	44.8	183	2,002	944	56,284
U3	16	59.6	1,380	9,607	4,529	423,661
U4	1	77.2	873	7,166	3,378	267,951
U5	1.5	77.2	914	7,406	3,491	280,635
U6	18	44.8	459	3,603	1,698	140,941
U7	8	44.8	733	7,726	3,642	224,981

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.010	0.012	0.047	0.298	107.350	0.004	0.003	0.001	0.036	0.041	0.201	0.334	37.518	0.001	0.001	0.000	0.046	0.052	0.247	0.632	144.868	0.004	0.004	0.002
Del Mar(BWM)	0.002	0.002	0.009	0.055	19.809	0.001	0.001	0.000	0.004	0.004	0.020	0.033	3.728	0.000	0.000	0.000	0.005	0.006	0.029	0.088	23.537	0.001	0.001	0.000
Encinitas(EDCO)	0.006	0.007	0.027	0.171	61.599	0.002	0.002	0.001	0.022	0.025	0.124	0.206	23.184	0.000	0.000	0.000	0.028	0.032	0.151	0.377	84.783	0.003	0.002	0.001
Escondido(EDCO)	0.002	0.002	0.008	0.053	18.986	0.001	0.001	0.000	0.044	0.050	0.248	0.413	46.449	0.001	0.001	0.000	0.046	0.052	0.257	0.466	65.435	0.002	0.001	0.001
Oceanside(BWM)	0.004	0.004	0.017	0.105	37.913	0.001	0.001	0.000	0.044	0.050	0.248	0.413	46.377	0.001	0.001	0.000	0.048	0.054	0.264	0.518	84.290	0.002	0.002	0.001
Poway(EDCO)	0.010	0.012	0.047	0.301	108.396	0.004	0.003	0.001	0.019	0.022	0.109	0.182	20.399	0.000	0.000	0.000	0.030	0.034	0.156	0.482	128.795	0.004	0.004	0.001
San Marcos(EDCO)	0.007	0.009	0.034	0.218	78.572	0.003	0.002	0.001	0.028	0.032	0.158	0.263	29.573	0.001	0.001	0.000	0.036	0.040	0.192	0.481	108.145	0.003	0.003	0.001
Solana Beach(BWM)	0.002	0.002	0.010	0.063	22.837	0.001	0.001	0.000	0.005	0.006	0.028	0.047	5.321	0.000	0.000	0.000	0.007	0.008	0.038	0.111	28.158	0.001	0.001	0.000
Vista(EDCO)	0.015	0.017	0.069	0.438	158.078	0.005	0.005	0.002	0.035	0.040	0.197	0.328	36.831	0.001	0.001	0.000	0.050	0.057	0.266	0.766	194.909	0.006	0.006	0.002

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.076	0.086	0.350	3.024	912.800	0.030	0.028	0.010	0.035	0.039	0.191	0.345	37.307	0.001	0.001	0.000	0.11	0.13	0.54	3.37	950.11	0.03	0.03	0.01
Del Mar(BWM)	0.008	0.009	0.035	0.302	91.155	0.003	0.003	0.001	0.003	0.004	0.019	0.034	3.707	0.000	0.000	0.000	0.01	0.01	0.05	0.34	94.86	0.00	0.00	0.00
Encinitas(EDCO)	0.054	0.062	0.249	2.155	650.625	0.021	0.020	0.007	0.021	0.024	0.118	0.213	23.054	0.001	0.001	0.000	0.08	0.09	0.37	2.37	673.68	0.02	0.02	0.01
Escondido(EDCO)	0.094	0.108	0.435	3.762	1135.801	0.037	0.034	0.012	0.043	0.049	0.236	0.427	46.188	0.001	0.001	0.000	0.14	0.16	0.67	4.19	1,181.99	0.04	0.04	0.01
Oceanside(BWM)	0.094	0.107	0.433	3.737	1128.320	0.037	0.034	0.012	0.043	0.049	0.236	0.426	46.116	0.001	0.001	0.000	0.14	0.16	0.67	4.16	1,174.44	0.04	0.04	0.01
Poway(EDCO)	0.041	0.047	0.191	1.652	498.808	0.016	0.015	0.005	0.019	0.021	0.104	0.187	20.284	0.000	0.000	0.000	0.06	0.07	0.29	1.84	519.09	0.02	0.02	0.01
San Marcos(EDCO)	0.069	0.079	0.318	2.749	829.901	0.027	0.025	0.009	0.027	0.031	0.150	0.272	29.407	0.001	0.001	0.000	0.10	0.11	0.47	3.02	859.31	0.03	0.03	0.01
Solana Beach(BWM)	0.012	0.014	0.057	0.495	149.324	0.005	0.005	0.002	0.005	0.006	0.027	0.049	5.291	0.000	0.000	0.000	0.02	0.02	0.08	0.54	154.61	0.01	0.00	0.00
Vista(EDCO)	0.056	0.064	0.260	2.242	676.978	0.022	0.020	0.007	0.034	0.039	0.187	0.338	36.624	0.001	0.001	0.000	0.09	0.10	0.45	2.58	713.60	0.02	0.02	0.01

Gregory Canyon Landfill Draft EIS
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Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00784361	0.008929349	0.03581427	0.228123289	82.26533642	0.00278498	0.002562	0.000872	0.0101	0.0115	0.0566	0.0943	10.5925	0.0002	0.0002	0.0001	0.0179	0.0204	0.0924	0.3224	92.8579	0.0030	0.0027	0.0010
U2	0.00229345	0.002610921	0.01047201	0.066702716	24.05419194	0.00081432	0.000749	0.000255	0.0080	0.0091	0.0449	0.0748	8.4068	0.0002	0.0001	0.0001	0.0103	0.0117	0.0554	0.1415	32.4610	0.0010	0.0009	0.0003
U3	0.02516245	0.028645532	0.11489288	0.731824084	263.9088487	0.00893427	0.00822	0.002798	0.0383	0.0436	0.2157	0.3591	40.3525	0.0008	0.0007	0.0004	0.0635	0.0723	0.3306	1.0909	304.2613	0.0097	0.0089	0.0032
U4	0.00117294	0.0013353	0.00535568	0.034113675	12.30200102	0.00041647	0.000383	0.00013	0.0286	0.0325	0.1609	0.2678	30.0962	0.0006	0.0005	0.0003	0.0298	0.0339	0.1662	0.3019	42.3982	0.0010	0.0009	0.0004
U5	0.00181838	0.002070087	0.00830281	0.052885725	19.07153789	0.00064564	0.000594	0.000202	0.0295	0.0336	0.1663	0.2768	31.1050	0.0006	0.0005	0.0003	0.0314	0.0357	0.1746	0.3297	50.1766	0.0012	0.0011	0.0005
U6	0.01061541	0.012084834	0.04847043	0.308738286	111.3365455	0.00376915	0.003468	0.00118	0.0144	0.0164	0.0809	0.1347	15.1322	0.0003	0.0003	0.0002	0.0250	0.0284	0.1294	0.4434	126.4687	0.0041	0.0037	0.0013
U7	0.0101174	0.011517891	0.04619651	0.294254267	106.1133496	0.00359232	0.003305	0.001125	0.0308	0.0351	0.1734	0.2888	32.4501	0.0006	0.0006	0.0003	0.0409	0.0466	0.2196	0.5830	138.5634	0.0042	0.0039	0.0015

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00763341	0.008690057	0.03518418	0.304027928	91.78520935	0.00301291	0.002772	0.000973	0.0046	0.0052	0.0254	0.0459	4.9656	0.0001	0.0001	0.0001	0.0122	0.0139	0.0605	0.3499	96.7508	0.0031	0.0029	0.0010
U2	0.00605826	0.006896871	0.02792395	0.241292007	72.84540424	0.0023912	0.0022	0.000772	0.0036	0.0042	0.0201	0.0364	3.9409	0.0001	0.0001	0.0000	0.0097	0.0110	0.0481	0.2777	76.7863	0.0025	0.0023	0.0008
U3	0.03868633	0.044041445	0.17831436	1.540821814	465.1699385	0.01526949	0.014048	0.004931	0.0175	0.0199	0.0966	0.1748	18.9164	0.0005	0.0004	0.0002	0.0562	0.0640	0.2749	1.7156	484.0864	0.0157	0.0145	0.0051
U4	0.03737407	0.042547534	0.17226583	1.488556242	449.3911037	0.01475154	0.013571	0.004764	0.0131	0.0149	0.0721	0.1304	14.1085	0.0003	0.0003	0.0001	0.0504	0.0574	0.2443	1.6189	463.4996	0.0151	0.0139	0.0049
U5	0.03862683	0.043973708	0.17804011	1.538451982	464.4544926	0.015246	0.014026	0.004923	0.0135	0.0154	0.0745	0.1347	14.5814	0.0004	0.0003	0.0002	0.0521	0.0593	0.2525	1.6732	479.0359	0.0156	0.0144	0.0051
U6	0.01090487	0.012414367	0.05026311	0.434325612	131.1217276	0.00430415	0.00396	0.00139	0.0066	0.0075	0.0362	0.0655	7.0937	0.0002	0.0002	0.0001	0.0175	0.0199	0.0865	0.4999	138.2154	0.0045	0.0041	0.0015
U7	0.02338489	0.026621921	0.10778644	0.931387146	281.1832604	0.00923001	0.008492	0.002981	0.0141	0.0160	0.0777	0.1406	15.2120	0.0004	0.0003	0.0002	0.0375	0.0426	0.1855	1.0720	296.3952	0.0096	0.0088	0.0031

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
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Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.156	0.178	0.788	4.000	1094.975	0.035	0.032	0.012
Del Mar (EWM)	0.016	0.019	0.082	0.424	118.399	0.004	0.004	0.001
Encinitas (EDCO)	0.103	0.118	0.518	2.745	758.462	0.024	0.022	0.008
Escondido (EDCO)	0.183	0.208	0.928	4.655	1247.424	0.040	0.037	0.013
Oceanside (EWM)	0.184	0.210	0.932	4.681	1258.726	0.040	0.037	0.013
Poway (EDCO)	0.090	0.102	0.451	2.322	647.888	0.021	0.019	0.007
San Marcos (EDCO)	0.132	0.150	0.661	3.502	967.452	0.031	0.029	0.010
Solana Beach (EWM)	0.025	0.028	0.123	0.654	182.773	0.006	0.005	0.002
Vista (EDCO)	0.140	0.160	0.712	3.347	908.511	0.029	0.027	0.010
Unincorporated	0.454	0.517	2.321	10.420	2821.957	0.090	0.083	0.030
Total	**1.484**	**1.690**	**7.515**	**37**	**10007**	**0.321**	**0.295**	**0.106**

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (WM)	93,793	306	62	29	91	24	Direct	62
Del Mar (WM)	9,319	30	6	3	9	41	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	33	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	21	Direct	76
Oceanside (WM)	115,938	378	76	36	112	23	Direct	76
Poway (EDCO)	50,996	166	34	16	49	33	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	23	Direct	49
Solana Beach (WM)	13,302	43	9	4	13	39	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	15	Direct	61
Unincorporated	198,154	645	130	61	192	30	See Below	163
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	39.6	Transfer	12
U2	9,908	32	7	3	10	30	Transfer	10
U3	47,557	155	31	15	46	30	Transfer	46
U4	35,470	116	23	11	34	38	Transfer	34
U5	36,658	119	24	11	35	12.5	Direct	24
U6	17,834	58	12	6	17	16.3	Direct	12
U7	38,244	125	25	12	37	17.2	Direct	25

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EDCO)	3.5	19.7	1,487	18,948		456,647
Del Mar (EDCO)	15.4	29	178	1,883	888	54,732
Encinitas (EDCO)	8.5	29	846	11,709	5,520	259,604
Escondido (EDCO)	1.4	19.7	1,597	23,458		490,281
Oceanside (EDCO)	2.5	19.7	1,732	23,422		531,675
Poway (EDCO)	16.5	19.7	865	10,302	4,857	265,664
San Marcos (EDCO)	4.2	19.7	1,119	14,935		343,511
Solana Beach (EDCO)	14.6	29	247	2,687	1,267	75,974
Vista (EDCO)	14.6	19.7	921	18,601		282,737
Unincorporated	See Below		2,480	40,031	10,040	761,261
Total			11,473	165,977	22,571	3,522,087
U1	21.5	19.7	253	2,522	1,189	77,644
U2	12.5	14	125	2,002	944	38,230
U3	11.5	19.7	651	9,607	4,529	199,712
U4	5	37.2	526	7,166	3,378	161,491
U5	3	37.2	302	7,406		92,572
U6	12	14	191	3,603		58,726
U7	11	14	433	7,726		132,887

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.075	0.085	0.341	2.174	783.983	0.027	0.024	0.008	0.0756	0.0860	0.4254	0.7082	79.5839	0.0015	0.0014	0.0008	0.150	0.171	0.767	2.882	863.567	0.028	0.026	0.009
Escondido(EDCO)	0.080	0.091	0.366	2.334	841.726	0.028	0.026	0.009	0.0936	0.1065	0.5266	0.8768	98.5282	0.0019	0.0017	0.0010	0.174	0.198	0.893	3.211	940.254	0.030	0.028	0.010
Oceanside(WM)	0.087	0.099	0.397	2.531	912.792	0.031	0.028	0.010	0.0934	0.1064	0.5258	0.8754	98.3744	0.0019	0.0017	0.0010	0.180	0.205	0.923	3.407	1011.167	0.033	0.030	0.011
San Marcos(EDCO)	0.056	0.064	0.257	1.635	589.748	0.020	0.018	0.006	0.0596	0.0678	0.3353	0.5582	62.7299	0.0012	0.0011	0.0007	0.116	0.132	0.592	2.194	652.478	0.021	0.019	0.007
Vista(EDCO)	0.046	0.053	0.211	1.346	485.410	0.016	0.015	0.005	0.0742	0.0845	0.4176	0.6953	78.1270	0.0015	0.0014	0.0008	0.120	0.137	0.629	2.041	563.537	0.018	0.016	0.006

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(WM)	0.005	0.005	0.022	0.138	49.776	0.002	0.002	0.001	0.0075	0.0085	0.0423	0.0704	7.9075	0.0001	0.0001	0.0001	0.012	0.014	0.064	0.208	57.684	0.002	0.002	0.001
Encinitas(EDCO)	0.016	0.019	0.074	0.474	170.869	0.006	0.005	0.002	0.0467	0.0532	0.2629	0.4376	49.1790	0.0009	0.0009	0.0005	0.063	0.072	0.337	0.911	220.048	0.007	0.006	0.002
Poway(EDCO)	0.028	0.032	0.127	0.809	291.837	0.010	0.009	0.003	0.0411	0.0468	0.2313	0.3851	43.2705	0.0008	0.0008	0.0005	0.069	0.078	0.358	1.194	335.107	0.011	0.010	0.004
Solana Beach(WM)	0.006	0.007	0.029	0.187	67.359	0.002	0.002	0.001	0.0107	0.0122	0.0603	0.1004	11.2870	0.0002	0.0002	0.0001	0.017	0.020	0.090	0.287	78.646	0.002	0.002	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(WM)	0.00368874	0.004199346	0.01700225	0.146917143	44.35388802	0.00145594	0.001339	0.00047	0.0034	0.0039	0.0189	0.0343	3.7069	0.0001	0.0001	0.0000	0.0071	0.0081	0.0359	0.1812	48.0608	0.0015	0.0014	0.0005
Encinitas(EDCO)	0.02294133	0.026116958	0.10574196	0.913720678	275.8498014	0.00905494	0.008331	0.002924	0.0034	0.0039	0.0189	0.0343	3.7069	0.0001	0.0001	0.0000	0.0264	0.0300	0.1247	0.9480	279.5567	0.0091	0.0084	0.0030
Poway(EDCO)	0.01371196	0.015610018	0.06320161	0.546127762	164.8744943	0.00541211	0.004979	0.001748	0.0034	0.0039	0.0189	0.0343	3.7069	0.0001	0.0001	0.0000	0.0171	0.0195	0.0821	0.5804	168.5814	0.0055	0.0051	0.0018
Solana Beach(WM)	0.00526522	0.005994056	0.02426865	0.209706385	63.3097905	0.00207818	0.001912	0.000671	0.0034	0.0039	0.0189	0.0343	3.7069	0.0001	0.0001	0.0000	0.0087	0.0099	0.0432	0.2440	67.0167	0.0022	0.0020	0.0007

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U5	0.015	0.017	0.069	0.441	158.929	0.005	0.005	0.002	0.0295	0.0336	0.1663	0.2768	31.1050	0.0006	0.0005	0.0003	0.0447	0.0509	0.2354	0.7175	190.0345	0.0060	0.0055	0.0020
U6	0.010	0.011	0.044	0.280	100.821	0.003	0.003	0.001	0.0144	0.0164	0.0809	0.1347	15.1322	0.0003	0.0003	0.0002	0.0240	0.0273	0.1248	0.4142	115.9536	0.0037	0.0034	0.0012
U7	0.022	0.025	0.099	0.633	228.144	0.008	0.007	0.002	0.0308	0.0351	0.1734	0.2888	32.4501	0.0006	0.0006	0.0003	0.0526	0.0598	0.2728	0.9214	260.5938	0.0083	0.0077	0.0028

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.009	0.010	0.041	0.258	93.090	0.003	0.003	0.001	0.0101	0.0115	0.0566	0.0943	10.5925	0.0002	0.0002	0.0001	0.0189	0.0216	0.0971	0.3524	103.6822	0.0034	0.0031	0.0011
U2	0.004	0.005	0.019	0.119	42.954	0.001	0.001	0.000	0.0080	0.0091	0.0449	0.0748	8.4068	0.0002	0.0001	0.0001	0.0121	0.0138	0.0636	0.1939	51.3607	0.0016	0.0015	0.0005
U3	0.018	0.021	0.083	0.526	189.684	0.006	0.006	0.002	0.0383	0.0436	0.2157	0.3591	40.3525	0.0008	0.0007	0.0004	0.0564	0.0642	0.2983	0.8851	230.0369	0.0072	0.0066	0.0024
U4	0.006	0.007	0.027	0.171	61.510	0.002	0.002	0.001	0.0286	0.0325	0.1609	0.2678	30.0962	0.0006	0.0005	0.0003	0.0344	0.0392	0.1876	0.4384	91.6062	0.0027	0.0024	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.004	0.015	0.134	40.361	0.001	0.001	0.000	0.0046	0.0052	0.0254	0.0459	4.9656	0.0001	0.0001	0.0001	0.0080	0.0091	0.0408	0.1796	45.3265	0.0014	0.0013	0.0005
U2	0.002	0.002	0.009	0.075	22.764	0.001	0.001	0.000	0.0036	0.0042	0.0201	0.0364	3.9409	0.0001	0.0001	0.0000	0.0055	0.0063	0.0289	0.1118	26.7051	0.0008	0.0008	0.0003
U3	0.013	0.015	0.059	0.509	153.756	0.005	0.005	0.002	0.0175	0.0199	0.0966	0.1748	18.9164	0.0005	0.0004	0.0002	0.0303	0.0345	0.1556	0.6841	172.6723	0.0055	0.0051	0.0018
U4	0.018	0.021	0.083	0.717	216.546	0.007	0.007	0.002	0.0131	0.0149	0.0721	0.1304	14.1085	0.0003	0.0003	0.0001	0.0311	0.0354	0.1551	0.8477	230.6545	0.0074	0.0069	0.0024

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.150	0.171	0.767	2.882	864	0.028	0.026	0.009
Del Mar (EWM)	0.019	0.022	0.100	0.390	106	0.003	0.003	0.001
Encinitas (EDCO)	0.089	0.102	0.462	1.859	500	0.016	0.015	0.005
Escondido (EDCO)	0.174	0.198	0.893	3.211	940	0.030	0.028	0.010
Oceanside (EWM)	0.180	0.205	0.923	3.407	1011	0.033	0.030	0.011
Poway (EDCO)	0.086	0.098	0.440	1.775	504	0.016	0.015	0.005
San Marcos (EDCO)	0.116	0.132	0.592	2.194	652	0.021	0.019	0.007
Solana Beach (EWM)	0.026	0.029	0.133	0.531	146	0.005	0.004	0.002
Vista (EDCO)	0.120	0.137	0.629	2.041	564	0.018	0.016	0.006
Unincorporated	0.318	0.362	1.660	5.746	1519	0.048	0.044	0.016
Total	**1.279**	**1.457**	**6.599**	**24**	**6804**	**0.218**	**0.201**	**0.072**

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	21	T7 Public
Direct Haul Truck	9.9	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (WM)	93,793	306	62	29	91	29.6	Direct	62
Del Mar (WM)	9,319	30	6	3	9	47.9	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	38.7	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	25.4	Direct	76
Oceanside (WM)	115,938	378	76	36	112	26.4	Direct	76
Poway (EDCO)	50,996	166	34	16	49	37.9	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	28.2	Direct	49
Solana Beach (WM)	13,302	43	9	4	13	44.8	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	20.7	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	160
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	44.8	Transfer	12
U2	9,908	32	7	3	10	18.2	Direct	7
U3	47,557	155	31	15	46	35.3	Transfer	46
U4	35,470	116	23	11	34	43	Transfer	34
U5	36,658	119	24	11	35	6.7	Direct	24
U6	17,834	58	12	6	17	25.4	Direct	12
U7	38,244	125	25	12	37	25.7	Direct	25

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to GCLF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	24.9	1,827	18,948		560,861
Del Mar (WM)	15.4	35.9	198	1,883	888	60,856
Encinitas (EDCO)	8.5	35.9	970	11,709	5,520	297,691
Escondido (EDCO)	1.4	25.1	1,941	23,458		595,844
Oceanside (WM)	2.5	24.9	2,014	23,422		618,336
Poway (EDCO)	16.5	25.1	951	10,302	4,857	291,891
San Marcos (EDCO)	4.2	25.1	1,372	14,935		421,175
Solana Beach (WM)	14.6	35.9	276	2,687	1,267	84,715
Vista (EDCO)	14.6	25.1	1,254	18,601		385,044
Unincorporated	See Below		2,815	40,031	9,096	864,182
Total			13,618	165,977	21,627	4,180,595
U1	21.5	24.9	273	2,522	1,189	83,826
U2	12.5	7.9	119	2,002		36,428
U3	11.5	25.1	730	9,607	4,529	224,169
U4	5	42.7	587	7,166	3,378	180,071
U5	3	42.7	162	7,406		49,619
U6	12	7.9	298	3,603		91,511
U7	11	7.9	647	7,726		198,558

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.092	0.105	0.419	2.670	962.900	0.033	0.030	0.010	0.0756	0.0860	0.4254	0.7082	79.5839	0.0015	0.0014	0.0008	0.167	0.191	0.845	3.378	1042.484	0.034	0.031	0.011
Escondido (EDCO)	0.098	0.111	0.445	2.837	1022.959	0.035	0.032	0.011	0.0936	0.1065	0.5266	0.8768	98.5282	0.0019	0.0017	0.0010	0.191	0.218	0.972	3.713	1121.487	0.036	0.034	0.012
Oceanside (WM)	0.101	0.115	0.462	2.944	1061.573	0.036	0.033	0.011	0.0934	0.1064	0.5258	0.8754	98.3744	0.0019	0.0017	0.0010	0.195	0.222	0.988	3.819	1159.948	0.038	0.035	0.012
San Marcos (EDCO)	0.069	0.078	0.315	2.005	723.082	0.024	0.023	0.008	0.0596	0.0678	0.3353	0.5582	62.7299	0.0012	0.0011	0.0007	0.129	0.146	0.650	2.563	785.812	0.026	0.024	0.008
Vista (EDCO)	0.063	0.072	0.288	1.833	661.052	0.022	0.021	0.007	0.0742	0.0845	0.4176	0.6953	78.1270	0.0015	0.0014	0.0008	0.137	0.156	0.705	2.528	739.179	0.024	0.022	0.008

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.005	0.005	0.022	0.138	49.776	0.002	0.002	0.001	0.0075	0.0085	0.0423	0.0704	7.9075	0.0001	0.0001	0.0001	0.012	0.014	0.064	0.208	57.684	0.002	0.002	0.001
Encinitas (EDCO)	0.016	0.019	0.074	0.474	170.869	0.006	0.005	0.002	0.0467	0.0532	0.2629	0.4376	49.1790	0.0009	0.0009	0.0005	0.063	0.072	0.337	0.911	220.048	0.007	0.006	0.002
Poway (EDCO)	0.028	0.032	0.127	0.809	291.837	0.010	0.009	0.003	0.0411	0.0468	0.2313	0.3851	43.2705	0.0008	0.0008	0.0005	0.069	0.078	0.358	1.194	335.107	0.011	0.010	0.004
Solana Beach (WM)	0.006	0.007	0.029	0.187	67.359	0.002	0.002	0.001	0.0107	0.0122	0.0603	0.1004	11.2870	0.0002	0.0002	0.0001	0.017	0.020	0.090	0.287	78.646	0.002	0.002	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.005	0.005	0.021	0.182	54.907	0.002	0.002	0.001	0.0034	0.0039	0.0189	0.0343	3.7069	0.0001	0.0001	0.0000	0.008	0.009	0.040	0.216	58.614	0.002	0.002	0.001
Encinitas (EDCO)	0.028	0.032	0.131	1.131	341.483	0.011	0.010	0.004	0.0213	0.0243	0.1177	0.2130	23.0541	0.0006	0.0005	0.0002	0.050	0.057	0.249	1.344	364.537	0.012	0.011	0.004
Poway (EDCO)	0.017	0.020	0.081	0.696	210.069	0.007	0.006	0.002	0.0188	0.0214	0.1036	0.1874	20.2843	0.0005	0.0005	0.0002	0.036	0.041	0.184	0.883	230.353	0.007	0.007	0.002
Solana Beach (WM)	0.007	0.007	0.030	0.260	78.373	0.003	0.002	0.001	0.0049	0.0056	0.0270	0.0489	5.2911	0.0001	0.0001	0.0001	0.011	0.013	0.057	0.308	83.664	0.003	0.002	0.001

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U2	0.006	0.007	0.027	0.173	62.541	0.002	0.002	0.001	0.0080	0.0091	0.0449	0.0748	8.4068	0.0002	0.0001	0.0001	0.0139	0.0159	0.0722	0.2482	70.948	0.0023	0.0021	0.0008
U5	0.008	0.009	0.037	0.236	85.186	0.003	0.003	0.001	0.0295	0.0336	0.1663	0.2768	31.1050	0.0006	0.0005	0.0003	0.0377	0.0429	0.2033	0.5130	116.291	0.0035	0.0032	0.0012
U6	0.015	0.017	0.068	0.436	157.108	0.005	0.005	0.002	0.0144	0.0164	0.0809	0.1347	15.1322	0.0003	0.0003	0.0002	0.0293	0.0334	0.1493	0.5703	172.240	0.0056	0.0052	0.0018
U7	0.033	0.037	0.148	0.945	340.889	0.012	0.011	0.004	0.0308	0.0351	0.1734	0.2888	32.4501	0.0006	0.0006	0.0003	0.0633	0.0721	0.3219	1.2341	373.339	0.0122	0.0112	0.0040

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.009	0.010	0.041	0.258	93.090	0.003	0.003	0.001	0.0101	0.0115	0.0566	0.0943	10.5925	0.0002	0.0002	0.0001	0.0189	0.0216	0.0971	0.3524	104	0.0034	0.0031	0.0011
U3	0.018	0.021	0.083	0.526	189.684	0.006	0.006	0.002	0.0383	0.0436	0.2157	0.3591	40.3525	0.0008	0.0007	0.0004	0.0564	0.0642	0.2983	0.8851	230	0.0072	0.0066	0.0024
U4	0.006	0.007	0.027	0.171	61.510	0.002	0.002	0.001	0.0286	0.0325	0.1609	0.2678	30.0962	0.0006	0.0005	0.0003	0.0344	0.0392	0.1876	0.4384	92	0.0027	0.0024	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.004	0.005	0.020	0.169	51.015	0.002	0.002	0.001	0.0046	0.0052	0.0254	0.0459	4.9656	0.0001	0.0001	0.0001	0.0088	0.0101	0.0449	0.2149	56	0.0018	0.0017	0.0006
U3	0.016	0.019	0.075	0.649	195.902	0.006	0.006	0.002	0.0175	0.0199	0.0966	0.1748	18.9164	0.0005	0.0004	0.0002	0.0338	0.0385	0.1717	0.8237	215	0.0069	0.0063	0.0023
U4	0.021	0.024	0.095	0.823	248.562	0.008	0.008	0.003	0.0131	0.0149	0.0721	0.1304	14.1085	0.0003	0.0003	0.0001	0.0337	0.0384	0.1673	0.9537	263	0.0085	0.0078	0.0028

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.167	0.191	0.845	3.378	1042	0.034	0.031	0.011
Del Mar (WM)	0.020	0.023	0.104	0.425	116	0.004	0.003	0.001
Encinitas (EDCO)	0.113	0.128	0.586	2.256	585	0.018	0.017	0.006
Escondido (EDCO)	0.191	0.218	0.972	3.713	1121	0.036	0.034	0.012
Oceanside (WM)	0.195	0.222	0.988	3.819	1160	0.038	0.035	0.012
Poway (EDCO)	0.105	0.120	0.542	2.078	565	0.018	0.017	0.006
San Marcos (EDCO)	0.129	0.146	0.650	2.563	786	0.026	0.024	0.008
Solana Beach (WM)	0.029	0.033	0.147	0.596	162	0.005	0.005	0.002
Vista (EDCO)	0.137	0.156	0.705	2.528	739	0.024	0.022	0.008
Unincorporated	0.316	0.360	1.642	5.986	1621	0.052	0.047	0.017
Total	**1.402**	**1.596**	**7.181**	**27**	**7898**	**0.255**	**0.235**	**0.084**

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	12.8	Direct	62
Del Mar (EWM)	9,319	30	6	3	9	29.0	Direct	6
Encinitas (EDCO)	57,959	189	38	18	56	21.9	Direct	38
Escondido (EDCO)	116,119	378	76	36	112	16.5	Direct	76
Oceanside (EWM)	115,938	378	76	36	112	14.6	Direct	76
Poway (EDCO)	50,996	166	34	16	49	28.5	Direct	34
San Marcos (EDCO)	73,930	241	49	23	72	10.4	Direct	49
Solana Beach (EWM)	13,302	43	9	4	13	28.0	Direct	9
Vista (EDCO)	92,076	300	61	29	89	4.7	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	145
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	33	Transfer	12
U2	9,908	32	7	3	10	25.5	Direct	7
U3	47,557	155	31	15	46	20.3	Direct	31
U4	35,470	116	23	11	34	34	Transfer	34
U5	36,658	119	24	11	35	14	Direct	24
U6	17,834	58	12	6	17	19.4	Direct	12
U7	38,244	125	25	12	37	6.1	Direct	25

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EWM)	3.5	11.2	790	18,948		242,535
Del Mar (EWM)	15.4	12.1	178	1,883		54,598
Encinitas (EEDCO)	8.5	12.1	835	11,709		256,426
Escondido (EEDCO)	1.4	16.6	1,261	23,458		387,064
Oceanside (EWM)	2.5	11.2	1,114	23,422		341,958
Poway (EEDCO)	16.5	16.6	956	10,302		293,613
San Marcos (EEDCO)	4.2	16.6	506	14,935		155,327
Solana Beach (EWM)	14.6	12.1	245	2,687		75,244
Vista (EEDCO)	14.6	16.6	285	18,601		87,425
Unincorporated	See Below		2,230	40,031	18,872	684,656
Total			8,400	165,977	18,872	2,578,846
U1	21.5	11.2	220	2,522	1,189	67,538
U2	12.5	13.8	166	2,002		51,040
U3	11.5	16.6	635	9,607		195,031
U4	5	33.9	490	7,166	3,378	150,344
U5	3	33.9	338	7,406		103,680
U6	12	13.8	228	3,603		69,894
U7	11	13.8	154	7,726		47,129

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.040	0.045	0.181	1.155	416.389	0.014	0.013	0.004	0.0756	0.0860	0.4254	0.7082	79.6	0.0015	0.0014	0.0008	0.115	0.131	0.607	1.863	495.973	0.016	0.014	0.005
Del Mar (EWM)	0.009	0.010	0.041	0.260	93.735	0.003	0.003	0.001	0.0075	0.0085	0.0423	0.0704	7.9	0.0001	0.0001	0.0001	0.016	0.019	0.083	0.330	101.642	0.003	0.003	0.001
Encinitas (EDCO)	0.042	0.048	0.192	1.221	440.238	0.015	0.014	0.005	0.0467	0.0532	0.2629	0.4376	49.2	0.0009	0.0009	0.0005	0.089	0.101	0.455	1.658	489.417	0.016	0.015	0.005
Escondido (EDCO)	0.063	0.072	0.289	1.843	664.521	0.022	0.021	0.007	0.0936	0.1065	0.5266	0.8768	98.5	0.0019	0.0017	0.0010	0.157	0.179	0.816	2.720	763.049	0.024	0.022	0.008
Oceanside (EWM)	0.056	0.064	0.256	1.628	587.082	0.020	0.018	0.006	0.0934	0.1064	0.5258	0.8754	98.4	0.0019	0.0017	0.0010	0.149	0.170	0.781	2.503	685.457	0.022	0.020	0.007
Poway (EDCO)	0.048	0.055	0.219	1.398	504.081	0.017	0.016	0.005	0.0411	0.0468	0.2313	0.3851	43.3	0.0008	0.0008	0.0005	0.089	0.101	0.451	1.783	547.352	0.018	0.016	0.006
San Marcos (EDCO)	0.025	0.029	0.116	0.739	266.669	0.009	0.008	0.003	0.0596	0.0678	0.3353	0.5582	62.7	0.0012	0.0011	0.0007	0.085	0.097	0.451	1.298	329.399	0.010	0.009	0.003
Solana Beach (EWM)	0.012	0.014	0.056	0.358	129.181	0.004	0.004	0.001	0.0107	0.0122	0.0603	0.1004	11.3	0.0002	0.0002	0.0001	0.023	0.026	0.117	0.459	140.468	0.005	0.004	0.001
Vista (EDCO)	0.014	0.016	0.065	0.416	150.094	0.005	0.005	0.002	0.0742	0.0845	0.4176	0.6953	78.1	0.0015	0.0014	0.0008	0.089	0.101	0.483	1.111	228.221	0.007	0.006	0.002

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U2	0.008	0.010	0.038	0.243	87.626	0.003	0.003	0.001	0.0080	0.0091	0.0449	0.0748	8.4	0.0002	0.0001	0.0001	0.0163	0.0186	0.0831	0.3178	96.033	0.0031	0.0029	0.0010
U3	0.032	0.036	0.146	0.929	334.834	0.011	0.010	0.004	0.0383	0.0436	0.2157	0.3591	40.4	0.0008	0.0007	0.0004	0.0702	0.0800	0.3615	1.2876	375.187	0.0121	0.0111	0.0040
U5	0.017	0.019	0.077	0.494	178.001	0.006	0.006	0.002	0.0295	0.0336	0.1663	0.2768	31.1	0.0006	0.0005	0.0003	0.0465	0.0529	0.2438	0.7704	209.106	0.0066	0.0061	0.0022
U6	0.011	0.013	0.052	0.333	119.996	0.004	0.004	0.001	0.0144	0.0164	0.0809	0.1347	15.1	0.0003	0.0003	0.0002	0.0258	0.0294	0.1331	0.4674	135.128	0.0043	0.0040	0.0014
U7	0.008	0.009	0.035	0.224	80.911	0.003	0.003	0.001	0.0308	0.0351	0.1734	0.2888	32.5	0.0006	0.0006	0.0003	0.0385	0.0439	0.2087	0.5131	113.362	0.0034	0.0031	0.0012

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00887566	0.01010426	0.0405267	0.258139511	93.08972279	0.00315142	0.002899	0.000987	0.0101	0.0115	0.0566	0.0943	10.6	0.0002	0.0002	0.0001	0.0189	0.0216	0.0971	0.3524	104	0.0034	0.0031	0.0011
U4	0.00586469	0.0066765	0.0267784	0.170568374	61.51000509	0.00208234	0.001916	0.000652	0.0286	0.0325	0.1609	0.2678	30.1	0.0006	0.0005	0.0003	0.0344	0.0392	0.1876	0.4384	92	0.0027	0.0024	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00190835	0.00217251	0.008796	0.076006982	22.94630234	0.00075323	0.000693	0.000243	0.0046	0.0052	0.0254	0.0459	5.0	0.0001	0.0001	0.0001	0.0065	0.0074	0.0342	0.1219	28	0.0009	0.0008	0.0003
U4	0.01641167	0.01868344	0.0756452	0.653653583	197.3362489	0.00647768	0.005959	0.002092	0.0131	0.0149	0.0721	0.1304	14.1	0.0003	0.0003	0.0001	0.0295	0.0335	0.1477	0.7840	211	0.0068	0.0063	0.0022

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.115	0.131	0.607	1.863	496	0.016	0.014	0.005
Del Mar (EWM)	0.016	0.019	0.083	0.330	102	0.003	0.003	0.001
Encinitas (EDCO)	0.089	0.101	0.455	1.658	489	0.016	0.015	0.005
Escondido (EDCO)	0.157	0.179	0.816	2.720	763	0.024	0.022	0.008
Oceanside (EWM)	0.149	0.170	0.781	2.503	685	0.022	0.020	0.007
Poway (EDCO)	0.089	0.101	0.451	1.783	547	0.018	0.016	0.006
San Marcos (EDCO)	0.085	0.097	0.451	1.298	329	0.010	0.009	0.003
Solana Beach (EWM)	0.023	0.026	0.117	0.459	140	0.005	0.004	0.001
Vista (EDCO)	0.089	0.101	0.483	1.111	228	0.007	0.006	0.002
Unincorporated	0.287	0.326	1.497	5.053	1363	0.043	0.040	0.014
Total	**1.099**	**1.251**	**5.740**	**19**	**5144**	**0.163**	**0.150**	**0.055**

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	17.9	Direct	62
Del Mar (EWM)	9,319	30	6	3	9	34.0	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	27.0	Direct	38
Escondido (EDCO)	116,119	378	76	36	112	11.5	Direct	76
Oceanside (EWM)	115,938	378	76	36	112	19.6	Direct	76
Poway (EDCO)	50,996	166	34	16	49	24.6	Direct	34
San Marcos (EDCO)	73,930	241	49	23	72	6.5	Direct	49
Solana Beach (EWM)	13,302	43	9	4	13	33.0	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	8.9	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	137
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	38.5	Transfer	12
U2	9,908	32	7	3	10	35.5	Transfer	10
U3	47,557	155	31	15	46	22.2	Direct	31
U4	35,470	116	23	11	34	30	Direct	23
U5	36,658	119	24	11	35	23.9	Direct	24
U6	17,834	58	12	6	17	20.7	Direct	12
U7	38,244	125	25	12	37	7.9	Direct	25

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EDCO)	3.5	18.7	1,105	18,948		339,169
Del Mar (EDCO)	15.4	13.5	133	1,883	888	40,975
Encinitas (EDCO)	8.5	13.5	1,030	11,709		316,141
Escondido (EDCO)	1.4	13.1	879	23,458		269,772
Oceanside (EDCO)	2.5	18.7	1,495	23,422		459,068
Poway (EDCO)	16.5	13.1	826	10,302		253,434
San Marcos (EDCO)	4.2	13.1	316	14,935		97,079
Solana Beach (EDCO)	14.6	13.5	184	2,687	1,267	56,337
Vista (EDCO)	14.6	13.1	539	18,601		165,550
Unincorporated	See Below		2,763	40,031	2,133	848,358
Total			9,270	165,977	4,287	2,845,885
U1	21.5	18.7	249	2,522	1,189	76,455
U2	12.5	7.9	106	2,002	944	32,474
U3	11.5	13.1	695	9,607		213,285
U4	5	30.6	696	7,166		213,534
U5	3	30.6	577	7,406		176,997
U6	12	7.9	243	3,603		74,578
U7	11	7.9	199	7,726		61,035

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.056	0.063	0.254	1.615	582.294	0.020	0.018	0.006	0.0756	0.0860	0.4254	0.7082	79.6	0.0015	0.0014	0.0008	0.131	0.149	0.679	2.323	661.878	0.021	0.020	0.007
Encinitas (EDCO)	0.052	0.059	0.236	1.505	542.759	0.018	0.017	0.006	0.0467	0.0532	0.2629	0.4376	49.2	0.0009	0.0009	0.0005	0.098	0.112	0.499	1.943	591.938	0.019	0.018	0.006
Escondido (EDCO)	0.044	0.050	0.202	1.284	463.151	0.016	0.014	0.005	0.0936	0.1065	0.5266	0.8768	98.5	0.0019	0.0017	0.0010	0.138	0.157	0.728	2.161	561.679	0.018	0.016	0.006
Oceanside (EWM)	0.075	0.086	0.343	2.186	788.138	0.027	0.025	0.008	0.0934	0.1064	0.5258	0.8754	98.4	0.0019	0.0017	0.0010	0.169	0.192	0.869	3.061	886.512	0.029	0.026	0.009
Poway (EDCO)	0.041	0.047	0.189	1.207	435.102	0.015	0.014	0.005	0.0411	0.0468	0.2313	0.3851	43.3	0.0008	0.0008	0.0005	0.083	0.094	0.421	1.592	478.372	0.016	0.014	0.005
San Marcos (EDCO)	0.016	0.018	0.073	0.462	166.668	0.006	0.005	0.002	0.0596	0.0678	0.3353	0.5582	62.7	0.0012	0.0011	0.0007	0.075	0.086	0.408	1.020	229.398	0.007	0.006	0.002
Vista (EDCO)	0.027	0.031	0.124	0.788	284.220	0.010	0.009	0.003	0.0742	0.0845	0.4176	0.6953	78.1	0.0015	0.0014	0.0008	0.101	0.115	0.541	1.483	362.347	0.011	0.010	0.004

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (EWM)	0.005	0.005	0.022	0.138	49.776	0.002	0.002	0.001	0.0075	0.0085	0.0423	0.0704	7.9	0.0001	0.0001	0.0001	0.012	0.014	0.064	0.208	57.684	0.002	0.002	0.001
Solana Beach (EWM)	0.006	0.007	0.029	0.187	67.359	0.002	0.002	0.001	0.0107	0.0122	0.0603	0.1004	11.3	0.0002	0.0002	0.0001	0.017	0.020	0.090	0.287	78.646	0.002	0.002	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (EWM)	0.002	0.002	0.008	0.068	20.647	0.001	0.001	0.000	0.0034	0.0039	0.0189	0.0343	3.7	0.0001	0.0001	0.0000	0.0051	0.0059	0.0268	0.1026	24.3544	0.0008	0.0007	0.0003
Solana Beach (EWM)	0.002	0.003	0.011	0.098	29.472	0.001	0.001	0.000	0.0049	0.0056	0.0270	0.0489	5.3	0.0001	0.0001	0.0001	0.0073	0.0084	0.0383	0.1465	34.7629	0.0011	0.0010	0.0004

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U3	0.035	0.040	0.159	1.015	366.174	0.012	0.011	0.004	0.0383	0.0436	0.2157	0.3591	40.4	0.0008	0.0007	0.0004	0.0732	0.0834	0.3751	1.3745	406.526	0.0132	0.0121	0.0043
U4	0.035	0.040	0.160	1.017	366.600	0.012	0.011	0.004	0.0286	0.0325	0.1609	0.2678	30.1	0.0006	0.0005	0.0003	0.0635	0.0723	0.3205	1.2844	396.696	0.0130	0.0119	0.0042
U5	0.029	0.033	0.132	0.843	303.873	0.010	0.009	0.003	0.0295	0.0336	0.1663	0.2768	31.1	0.0006	0.0005	0.0003	0.0585	0.0666	0.2986	1.1195	334.978	0.0109	0.0100	0.0036
U6	0.012	0.014	0.056	0.355	128.037	0.004	0.004	0.001	0.0144	0.0164	0.0809	0.1347	15.1	0.0003	0.0003	0.0002	0.0266	0.0303	0.1366	0.4897	143.169	0.0046	0.0043	0.0015
U7	0.010	0.011	0.046	0.291	104.787	0.004	0.003	0.001	0.0308	0.0351	0.1734	0.2888	32.5	0.0006	0.0006	0.0003	0.0408	0.0465	0.2191	0.5794	137.237	0.0042	0.0038	0.0015

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.009	0.010	0.041	0.258	93.090	0.003	0.003	0.001	0.0101	0.0115	0.0566	0.0943	10.6	0.0002	0.0002	0.0001	0.0189	0.0216	0.0971	0.3524	103.6822	0.0034	0.0031	0.0011
U2	0.004	0.005	0.019	0.119	42.954	0.001	0.001	0.000	0.0080	0.0091	0.0449	0.0748	8.4	0.0002	0.0001	0.0001	0.0121	0.0138	0.0636	0.1939	51.3607	0.0016	0.0015	0.0005

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.004	0.015	0.127	38.312	0.001	0.001	0.000	0.0046	0.0046	0.0046	0.0046	0.0	0.0046	0.0046	0.0046	0.0078	0.0082	0.0193	0.1315	38.3167	0.0059	0.0058	0.0050
U2	0.001	0.001	0.005	0.043	12.846	0.000	0.000	0.000	0.0036	0.0036	0.0036	0.0036	0.0	0.0036	0.0036	0.0036	0.0047	0.0049	0.0086	0.0462	12.8492	0.0041	0.0040	0.0038

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.131	0.149	0.679	2.323	662	0.021	0.020	0.007
Del Mar (WM)	0.017	0.020	0.091	0.311	82	0.003	0.002	0.001
Encinitas (EDCO)	0.098	0.112	0.499	1.943	591.938	0.019	0.018	0.006
Escondido (EDCO)	0.138	0.157	0.728	2.161	562	0.018	0.016	0.006
Oceanside (WM)	0.169	0.192	0.869	3.061	887	0.029	0.026	0.009
Poway (EDCO)	0.083	0.094	0.421	1.592	478.372	0.016	0.014	0.005
San Marcos (EDCO)	0.075	0.086	0.408	1.020	229	0.007	0.006	0.002
Solana Beach (WM)	0.024	0.028	0.128	0.434	113	0.004	0.003	0.001
Vista (EDCO)	0.101	0.115	0.541	1.483	362	0.011	0.010	0.004
Unincorporated	0.306	0.347	1.538	5.571	1625	0.061	0.056	0.025
Total	**5 of 5**	**1.300**	**5.902**	**20**	**5592**	**0.187**	**0.173**	**0.068**

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	55.8	Transfer	91
Del Mar (EWM)	9,319	30	6	3	9	41.6	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	47.5	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	51.7	Transfer	112
Oceanside (EWM)	115,938	378	76	36	112	59.2	Transfer	112
Poway (EDCO)	50,996	166	34	16	49	42.6	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	55.5	Transfer	72
Solana Beach (EWM)	13,302	43	9	4	13	42.8	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	62.0	Transfer	89
Unincorporated	198,154	645	130	61	192	30.0	See Below	192
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	78.6	Transfer	12
U2	9,908	32	7	3	10	87.1	Transfer	10
U3	47,557	155	31	15	46	48	Transfer	46
U4	35,470	116	23	11	34	50	Transfer	34
U5	36,658	119	24	11	35	75.6	Transfer	35
U6	17,834	58	12	6	17	62.3	Transfer	17
U7	38,244	125	25	12	37	60.9	Transfer	37

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EWM)	3.5	59.7	1,953	18,948	8,933	599,596
Del Mar (EWM)	15.4	56.9	259	1,883	888	79,495
Encinitas (EDCO)	8.5	56.9	1,347	11,709	5,520	413,610
Escondido (EDCO)	1.4	51.8	1,973	23,458	11,059	605,697
Oceanside (EWM)	2.5	59.7	2,338	23,422	11,042	717,745
Poway (EDCO)	16.5	51.8	1,373	10,302	4,857	421,566
San Marcos (EDCO)	4.2	51.8	1,392	14,935	7,041	427,447
Solana Beach (EWM)	14.6	56.9	363	2,687	1,267	111,319
Vista (EDCO)	14.6	51.8	2,364	18,601	8,769	725,817
Unincorporated	See Below		4,949	40,031	18,872	1,519,305
Total			18,311	165,977	78,246	5,621,597
U1	21.5	59.7	408	2,522	1,189	125,201
U2	12.5	76.9	318	2,002	944	97,581
U3	11.5	51.8	1,124	9,607	4,529	345,100
U4	5	51.6	684	7,166	3,378	210,135
U5	3	51.6	659	7,406	3,491	202,367
U6	12	76.9	566	3,603	1,698	173,845
U7	11	76.9	1,189	7,726	3,642	365,075

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.005	0.006	0.023	0.149	53.675	0.002	0.002	0.001	0.036	0.041	0.201	0.334	37.518	0.001	0.001	0.000	0.041	0.046	0.224	0.483	91.193	0.003	0.002	0.001
Del Mar(BWM)	0.002	0.003	0.010	0.065	23.466	0.001	0.001	0.000	0.004	0.004	0.020	0.033	3.728	0.000	0.000	0.000	0.006	0.007	0.030	0.098	27.194	0.001	0.001	0.000
Encinitas(EDCO)	0.008	0.009	0.035	0.223	80.552	0.003	0.003	0.001	0.022	0.025	0.124	0.206	23.184	0.000	0.000	0.000	0.030	0.034	0.159	0.430	103.737	0.003	0.003	0.001
Escondido(EDCO)	0.003	0.003	0.012	0.074	26.581	0.001	0.001	0.000	0.044	0.050	0.248	0.413	46.449	0.001	0.001	0.000	0.047	0.053	0.260	0.487	73.030	0.002	0.002	0.001
Oceanside(BWM)	0.005	0.005	0.021	0.131	47.392	0.002	0.001	0.001	0.044	0.050	0.248	0.413	46.377	0.001	0.001	0.000	0.049	0.055	0.269	0.544	93.768	0.002	0.002	0.001
Poway(EDCO)	0.013	0.015	0.060	0.382	137.580	0.005	0.004	0.001	0.019	0.022	0.109	0.182	20.399	0.000	0.000	0.000	0.032	0.037	0.169	0.563	157.979	0.005	0.005	0.002
San Marcos(EDCO)	0.005	0.006	0.022	0.141	50.770	0.002	0.002	0.001	0.028	0.032	0.158	0.263	29.573	0.001	0.001	0.000	0.033	0.037	0.180	0.404	80.342	0.002	0.002	0.001
Solana Beach(BWM)	0.003	0.003	0.014	0.088	31.755	0.001	0.001	0.000	0.005	0.006	0.028	0.047	5.321	0.000	0.000	0.000	0.008	0.009	0.042	0.135	37.076	0.001	0.001	0.000
Vista(EDCO)	0.021	0.024	0.096	0.610	219.803	0.007	0.007	0.002	0.035	0.040	0.197	0.328	36.831	0.001	0.001	0.000	0.056	0.064	0.293	0.937	256.634	0.008	0.007	0.003

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.076	0.087	0.352	3.044	918.957	0.030	0.028	0.010	0.035	0.039	0.191	0.345	37.307	0.001	0.001	0.000	0.11	0.13	0.54	3.39	956.26	0.03	0.03	0.01
Del Mar(BWM)	0.007	0.008	0.033	0.288	87.025	0.003	0.003	0.001	0.003	0.004	0.019	0.034	3.707	0.000	0.000	0.000	0.01	0.01	0.05	0.32	90.73	0.00	0.00	0.00
Encinitas(EDCO)	0.045	0.051	0.207	1.793	541.236	0.018	0.016	0.006	0.021	0.024	0.118	0.213	23.054	0.001	0.001	0.000	0.07	0.08	0.33	2.01	564.29	0.02	0.02	0.01
Escondido(EDCO)	0.082	0.093	0.378	3.270	987.156	0.032	0.030	0.010	0.043	0.049	0.236	0.427	46.188	0.001	0.001	0.000	0.12	0.14	0.61	3.70	1,033.34	0.03	0.03	0.01
Oceanside(BWM)	0.094	0.108	0.435	3.763	1135.931	0.037	0.034	0.012	0.043	0.049	0.236	0.426	46.116	0.001	0.001	0.000	0.14	0.16	0.67	4.19	1,182.05	0.04	0.04	0.01
Poway(EDCO)	0.036	0.041	0.166	1.436	433.528	0.014	0.013	0.005	0.019	0.021	0.104	0.187	20.284	0.000	0.000	0.000	0.05	0.06	0.27	1.62	453.81	0.01	0.01	0.00
San Marcos(EDCO)	0.052	0.060	0.241	2.082	628.492	0.021	0.019	0.007	0.027	0.031	0.150	0.272	29.407	0.001	0.001	0.000	0.08	0.09	0.39	2.35	657.90	0.02	0.02	0.01
Solana Beach(BWM)	0.010	0.012	0.048	0.411	124.218	0.004	0.004	0.001	0.005	0.006	0.027	0.049	5.291	0.000	0.000	0.000	0.02	0.02	0.07	0.46	129.51	0.00	0.00	0.00
Vista(EDCO)	0.065	0.074	0.300	2.593	782.756	0.026	0.024	0.008	0.034	0.039	0.187	0.338	36.624	0.001	0.001	0.000	0.10	0.11	0.49	2.93	819.38	0.03	0.02	0.01

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00887566	0.010104264	0.04052667	0.258139511	93.08972279	0.00315142	0.002899	0.000987	0.0101	0.0115	0.0566	0.0943	10.5925	0.0002	0.0002	0.0001	0.0189	0.0216	0.0971	0.3524	103.6822	0.0034	0.0031	0.0011
U2	0.00409545	0.004662359	0.01870001	0.119111993	42.95391417	0.00145415	0.001338	0.000455	0.0080	0.0091	0.0449	0.0748	8.4068	0.0002	0.0001	0.0001	0.0121	0.0138	0.0636	0.1939	51.3607	0.0016	0.0015	0.0005
U3	0.01808551	0.020588976	0.08257926	0.525998561	189.684485	0.00642151	0.005908	0.002011	0.0383	0.0436	0.2157	0.3591	40.3525	0.0008	0.0007	0.0004	0.0564	0.0642	0.2983	0.8851	230.0369	0.0072	0.0066	0.0024
U4	0.00586469	0.006676498	0.02677842	0.170568374	61.51000509	0.00208234	0.001916	0.000652	0.0286	0.0325	0.1609	0.2678	30.0962	0.0006	0.0005	0.0003	0.0344	0.0392	0.1876	0.4384	91.6062	0.0027	0.0024	0.0010
U5	0.00363676	0.004140175	0.01660561	0.10577145	38.14307578	0.00129128	0.001188	0.000404	0.0295	0.0336	0.1663	0.2768	31.1050	0.0006	0.0005	0.0003	0.0332	0.0378	0.1829	0.3826	69.2481	0.0019	0.0017	0.0007
U6	0.00707694	0.008056556	0.03231362	0.205825524	74.22436369	0.00251276	0.002312	0.000787	0.0144	0.0164	0.0809	0.1347	15.1322	0.0003	0.0003	0.0002	0.0214	0.0244	0.1132	0.3405	89.3565	0.0028	0.0026	0.0009
U7	0.01391143	0.0158371	0.0635202	0.404599618	145.9058557	0.00493944	0.004544	0.001547	0.0308	0.0351	0.1734	0.2888	32.4501	0.0006	0.0006	0.0003	0.0447	0.0509	0.2370	0.6934	178.3560	0.0056	0.0051	0.0019

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.0101722	0.011580277	0.04688606	0.40514436	122.3119866	0.00401497	0.003694	0.001297	0.0046	0.0052	0.0254	0.0459	4.9656	0.0001	0.0001	0.0001	0.0148	0.0168	0.0722	0.4510	127.2775	0.0041	0.0038	0.0013
U2	0.01039912	0.011838602	0.04793196	0.414182038	125.0404372	0.00410453	0.003776	0.001325	0.0036	0.0042	0.0201	0.0364	3.9409	0.0001	0.0001	0.0000	0.0140	0.0160	0.0681	0.4506	128.9814	0.0042	0.0039	0.0014
U3	0.03362336	0.038277632	0.15497792	1.339170637	404.2919936	0.01327113	0.012209	0.004286	0.0175	0.0199	0.0966	0.1748	18.9164	0.0005	0.0004	0.0002	0.0511	0.0582	0.2516	1.5140	423.2084	0.0137	0.0126	0.0045
U4	0.0249806	0.028438507	0.11514141	0.994941737	300.3702195	0.00985984	0.009071	0.003184	0.0131	0.0149	0.0721	0.1304	14.1085	0.0003	0.0003	0.0001	0.0380	0.0433	0.1872	1.1253	314.4787	0.0102	0.0094	0.0033
U5	0.02581793	0.029391753	0.1190009	1.028291739	310.4384951	0.01019033	0.009375	0.003291	0.0135	0.0154	0.0745	0.1347	14.5814	0.0004	0.0003	0.0002	0.0393	0.0448	0.1935	1.1630	325.0199	0.0105	0.0097	0.0034
U6	0.01871841	0.021309483	0.08627752	0.745527669	225.072787	0.00738815	0.006797	0.002386	0.0066	0.0075	0.0362	0.0655	7.0937	0.0002	0.0002	0.0001	0.0253	0.0288	0.1225	0.8111	232.1664	0.0076	0.0070	0.0025
U7	0.04014059	0.045697002	0.18501735	1.598742668	482.6560876	0.01584348	0.014576	0.005116	0.0141	0.0160	0.0777	0.1406	15.2120	0.0004	0.0003	0.0002	0.0542	0.0617	0.2627	1.7393	497.8680	0.0162	0.0149	0.0053

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.152	0.173	0.767	3.871	1047.458	0.034	0.031	0.011
Del Mar (WM)	0.016	0.019	0.082	0.421	117.926	0.004	0.004	0.001
Encinitas (EDCO)	0.096	0.109	0.484	2.436	668.027	0.021	0.020	0.007
Escondido (EDCO)	0.171	0.195	0.874	4.184	1106.374	0.035	0.032	0.012
Oceanside (WM)	0.186	0.211	0.939	4.733	1275.815	0.041	0.038	0.014
Poway (EDCO)	0.087	0.099	0.439	2.186	611.791	0.020	0.018	0.006
San Marcos (EDCO)	0.112	0.128	0.571	2.757	738.241	0.024	0.022	0.008
Solana Beach (WM)	0.023	0.027	0.117	0.596	166.585	0.005	0.005	0.002
Vista (EDCO)	0.155	0.176	0.780	3.869	1076.015	0.035	0.032	0.011
Unincorporated	0.458	0.521	2.338	10.541	2862.647	0.092	0.084	0.030
Total	**1.457**	**1.659**	**7.391**	**36**	**9671**	**0.310**	**0.285**	**0.103**

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EDCO)	7	2,157	18,948	8,933	662,341
Del Mar (EDCO)	13	252	1,883	888	77,373
Encinitas (EDCO)	6.5	1,478	11,709	5,520	453,671
Escondido (EDCO)	1	2,223	23,458	11,059	682,573
Oceanside (EDCO)	2	2,285	23,422	11,042	701,617
Poway (EDCO)	13	1,379	10,302	4,857	423,391
San Marcos (EDCO)	6.5	1,885	14,935	7,041	578,678
Solana Beach (EDCO)	10.5	374	2,687	1,267	114,870
Vista (EDCO)	10.5	1,916	18,601	8,769	588,168
Unincorporated	See Below	4,872	40,031	18,872	1,495,635
Total		18,822	165,977	78,246	5,778,318
U1	19	330	2,522	1,189	101,181
U2	7	183	2,002	944	56,284
U3	16	1,380	9,607	4,529	423,661
U4	1	873	7,166	3,378	267,951
U5	1.5	914	7,406	3,491	280,635
U6	18	459	3,603	1,698	140,941
U7	8	733	7,726	3,642	224,981

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (WM)	7	59.3	2,157	18,948	8,933	662,341
Del Mar (WM)	13	59.6	252	1,883	888	77,373
Encinitas (EDCO)	6.5	68.4	1,478	11,709	5,520	453,671
Escondido (EDCO)	1	59.6	2,223	23,458	11,059	682,573
Oceanside (WM)	2	59.3	2,285	23,422	11,042	701,617
Poway (EDCO)	13	59.6	1,379	10,302	4,857	423,391
San Marcos (EDCO)	6.5	68.4	1,885	14,935	7,041	578,678
Solana Beach (WM)	10.5	68.4	374	2,687	1,267	114,870
Vista (EDCO)	10.5	44.8	1,916	18,601	8,769	588,168
Unincorporated	See Below		4,872	40,031	18,872	1,495,635
Total			18,822	165,977	78,246	5,778,318
U1	19	44.8	330	2,522	1,189	101,181
U2	7	44.8	183	2,002	944	56,284
U3	16	59.6	1,380	9,607	4,529	423,661
U4	1	77.2	873	7,166	3,378	267,951
U5	1.5	77.2	914	7,406	3,491	280,635
U6	18	44.8	459	3,603	1,698	140,941
U7	8	44.8	733	7,726	3,642	224,981

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.011	0.013	0.051	0.096	106.320	0.003	0.003	0.001	0.043	0.049	0.245	0.230	37.411	0.001	0.001	0.000	0.055	0.062	0.296	0.326	143.730	0.004	0.004	0.002
Del Mar(BWM)	0.002	0.002	0.009	0.018	19.619	0.001	0.001	0.000	0.004	0.005	0.024	0.023	3.717	0.000	0.000	0.000	0.006	0.007	0.034	0.041	23.336	0.001	0.001	0.000
Encinitas(EDCO)	0.006	0.007	0.029	0.055	61.008	0.002	0.002	0.001	0.027	0.031	0.151	0.142	23.118	0.000	0.000	0.000	0.033	0.038	0.181	0.197	84.125	0.002	0.002	0.001
Escondido(EDCO)	0.002	0.002	0.009	0.017	18.804	0.001	0.001	0.000	0.054	0.061	0.303	0.285	46.316	0.001	0.001	0.000	0.056	0.063	0.312	0.302	65.120	0.001	0.001	0.001
Oceanside(BWM)	0.004	0.004	0.018	0.034	37.549	0.001	0.001	0.000	0.054	0.061	0.303	0.285	46.244	0.001	0.001	0.000	0.058	0.066	0.321	0.319	83.793	0.002	0.002	0.001
Poway(EDCO)	0.011	0.013	0.052	0.097	107.356	0.003	0.003	0.001	0.024	0.027	0.133	0.125	20.341	0.000	0.000	0.000	0.035	0.040	0.185	0.222	127.696	0.004	0.003	0.001
San Marcos(EDCO)	0.008	0.009	0.038	0.070	77.818	0.002	0.002	0.001	0.034	0.039	0.193	0.182	29.488	0.001	0.000	0.000	0.042	0.048	0.231	0.252	107.306	0.003	0.003	0.001
Solana Beach(BWM)	0.002	0.003	0.011	0.020	22.618	0.001	0.001	0.000	0.006	0.007	0.035	0.033	5.306	0.000	0.000	0.000	0.009	0.010	0.046	0.053	27.924	0.001	0.001	0.000
Vista(EDCO)	0.016	0.019	0.076	0.141	156.560	0.005	0.005	0.002	0.043	0.049	0.241	0.226	36.726	0.001	0.001	0.000	0.059	0.067	0.316	0.367	193.286	0.006	0.005	0.002

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.083	0.095	0.381	1.348	903.027	0.026	0.024	0.010	0.041	0.047	0.231	0.262	37.397	0.001	0.001	0.000	0.12	0.14	0.61	1.61	940.42	0.03	0.02	0.01
Del Mar(BWM)	0.008	0.009	0.038	0.135	90.179	0.003	0.002	0.001	0.004	0.005	0.023	0.026	3.716	0.000	0.000	0.000	0.01	0.01	0.06	0.16	93.89	0.00	0.00	0.00
Encinitas(EDCO)	0.059	0.068	0.272	0.961	643.659	0.018	0.017	0.007	0.025	0.029	0.143	0.162	23.110	0.000	0.000	0.000	0.08	0.10	0.41	1.12	666.77	0.02	0.02	0.01
Escondido(EDCO)	0.104	0.118	0.474	1.678	1123.640	0.032	0.030	0.012	0.051	0.058	0.285	0.324	46.299	0.001	0.001	0.000	0.15	0.18	0.76	2.00	1,169.94	0.03	0.03	0.01
Oceanside(BWM)	0.103	0.117	0.471	1.667	1116.240	0.032	0.029	0.012	0.051	0.058	0.285	0.324	46.227	0.001	0.001	0.000	0.15	0.17	0.76	1.99	1,162.47	0.03	0.03	0.01
Poway(EDCO)	0.045	0.052	0.208	0.737	493.468	0.014	0.013	0.005	0.022	0.025	0.125	0.142	20.333	0.000	0.000	0.000	0.07	0.08	0.33	0.88	513.80	0.01	0.01	0.01
San Marcos(EDCO)	0.076	0.086	0.346	1.226	821.016	0.024	0.022	0.009	0.032	0.037	0.182	0.207	29.477	0.001	0.000	0.000	0.11	0.12	0.53	1.43	850.49	0.02	0.02	0.01
Solana Beach(BWM)	0.014	0.016	0.062	0.221	147.725	0.004	0.004	0.002	0.006	0.007	0.033	0.037	5.304	0.000	0.000	0.000	0.02	0.02	0.10	0.26	153.03	0.00	0.00	0.00
Vista(EDCO)	0.062	0.070	0.283	1.000	669.730	0.019	0.018	0.007	0.040	0.046	0.226	0.257	36.712	0.001	0.001	0.000	0.10	0.12	0.51	1.26	706.44	0.02	0.02	0.01

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00855025	0.009733804	0.03931117	0.073558092	81.47561537	0.0026049	0.002397	0.000864	0.0123	0.0140	0.0692	0.0650	10.5622	0.0002	0.0002	0.0001	0.0208	0.0237	0.1085	0.1386	92.0378	0.0028	0.0026	0.0010
U2	0.00250007	0.002846141	0.01149449	0.021508214	23.82327935	0.00076167	0.000701	0.000253	0.0097	0.0111	0.0549	0.0516	8.3827	0.0001	0.0001	0.0001	0.0122	0.0139	0.0664	0.0731	32.2060	0.0009	0.0008	0.0003
U3	0.02742936	0.031226238	0.12611102	0.235975834	261.3754077	0.00835657	0.007688	0.002771	0.0467	0.0532	0.2635	0.2478	40.2369	0.0007	0.0006	0.0004	0.0741	0.0844	0.3896	0.4837	301.6123	0.0090	0.0083	0.0032
U4	0.00127861	0.001455598	0.00587861	0.010999915	12.18390572	0.00038954	0.000358	0.000129	0.0348	0.0397	0.1965	0.1848	30.0100	0.0005	0.0005	0.0003	0.0361	0.0411	0.2024	0.1958	42.1939	0.0009	0.0008	0.0004
U5	0.0019822	0.002256584	0.00911349	0.017052941	18.8884572	0.00060389	0.000556	0.0002	0.0360	0.0410	0.2031	0.1910	31.0159	0.0005	0.0005	0.0003	0.0380	0.0433	0.2123	0.2080	49.9044	0.0011	0.0010	0.0005
U6	0.01157176	0.013173569	0.05320309	0.099552305	110.2677501	0.00352543	0.003243	0.001169	0.0175	0.0199	0.0988	0.0929	15.0888	0.0003	0.0002	0.0002	0.0291	0.0331	0.1520	0.1925	125.3566	0.0038	0.0035	0.0013
U7	0.01102889	0.01255555	0.05070714	0.09488195	105.0946952	0.00336004	0.003091	0.001114	0.0376	0.0428	0.2119	0.1992	32.3572	0.0006	0.0005	0.0003	0.0486	0.0553	0.2626	0.2941	137.4519	0.0039	0.0036	0.0015

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00836999	0.009528594	0.03831663	0.135581902	90.80251248	0.00260089	0.002393	0.000963	0.0055	0.0062	0.0307	0.0349	4.9775	0.0001	0.0001	0.0001	0.0138	0.0157	0.0690	0.1705	95.7800	0.0027	0.0025	0.0010
U2	0.00664285	0.007562376	0.03041003	0.107604684	72.06548609	0.0020642	0.001899	0.000764	0.0043	0.0049	0.0244	0.0277	3.9504	0.0001	0.0001	0.0000	0.0110	0.0125	0.0548	0.1353	76.0159	0.0021	0.0020	0.0008
U3	0.04241933	0.048291175	0.19418973	0.687132769	460.1896041	0.01318137	0.012127	0.004878	0.0208	0.0237	0.1169	0.1329	18.9619	0.0003	0.0003	0.0002	0.0632	0.0720	0.3111	0.8200	479.1515	0.0135	0.0124	0.0051
U4	0.04098044	0.04665311	0.18760271	0.663824825	444.579705	0.01273425	0.011716	0.004713	0.0155	0.0176	0.0872	0.0991	14.1424	0.0003	0.0002	0.0001	0.0565	0.0643	0.2748	0.7629	458.7221	0.0130	0.0120	0.0049
U5	0.04235408	0.048216902	0.19389107	0.686075937	459.481818	0.0131611	0.012108	0.004871	0.0160	0.0182	0.0901	0.1024	14.6165	0.0003	0.0002	0.0002	0.0584	0.0665	0.2840	0.7885	474.0983	0.0134	0.0124	0.0050
U6	0.01195713	0.013612277	0.05473805	0.193688431	129.717875	0.00371555	0.003418	0.001375	0.0078	0.0089	0.0438	0.0498	7.1107	0.0001	0.0001	0.0001	0.0198	0.0225	0.0986	0.2435	136.8286	0.0038	0.0035	0.0015
U7	0.02564139	0.029190773	0.1173827	0.415354081	278.1727763	0.0079678	0.00733	0.002949	0.0167	0.0190	0.0940	0.1068	15.2485	0.0003	0.0003	0.0002	0.0424	0.0482	0.2114	0.5222	293.4213	0.0082	0.0076	0.0031

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculations - Franchised Haulers
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.179	0.204	0.908	1.937	1084.154	0.031	0.028	0.011
Del Mar (WM)	0.019	0.021	0.095	0.201	117.231	0.003	0.003	0.001
Encinitas (EDCO)	0.118	0.134	0.595	1.320	750.894	0.021	0.020	0.008
Escondido (EDCO)	0.210	0.239	1.072	2.304	1235.059	0.034	0.032	0.013
Oceanside (WM)	0.211	0.240	1.077	2.309	1246.259	0.035	0.032	0.013
Poway (EDCO)	0.103	0.117	0.519	1.101	641.497	0.018	0.017	0.007
San Marcos (EDCO)	0.150	0.171	0.759	1.684	957.799	0.027	0.025	0.010
Solana Beach (WM)	0.028	0.032	0.141	0.311	180.953	0.005	0.005	0.002
Vista (EDCO)	0.161	0.183	0.825	1.625	899.728	0.025	0.023	0.010
Unincorporated	0.524	0.596	2.698	5.029	2794.781	0.079	0.073	0.030
Total	**1.703**	**1.938**	**8.688**	**18**	**9908**	**0.280**	**0.257**	**0.105**

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	21	T7 Public
Direct Haul Truck	9.9	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	24	Direct	62
Del Mar (EWM)	9,319	30	6	3	9	41	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	33	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	21	Direct	76
Oceanside (EWM)	115,938	378	76	36	112	23	Direct	76
Poway (EDCO)	50,996	166	34	16	49	33	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	23	Direct	49
Solana Beach (EWM)	13,302	43	9	4	13	39	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	15	Direct	61
Unincorporated	198,154	645	130	61	192	30	See Below	163
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	39.6	Transfer	12
U2	9,908	32	7	3	10	30	Transfer	10
U3	47,557	155	31	15	46	30	Transfer	46
U4	35,470	116	23	11	34	38	Transfer	34
U5	36,658	119	24	11	35	12.5	Direct	24
U6	17,834	58	12	6	17	16.3	Direct	12
U7	38,244	125	25	12	37	17.2	Direct	25

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EDCO)	3.5	19.7	1,487	18,948		456,647
Del Mar (EDCO)	15.4	29	178	1,883	888	54,732
Encinitas (EDCO)	8.5	29	846	11,709	5,520	259,604
Escondido (EDCO)	1.4	19.7	1,597	23,458		490,281
Oceanside (EDCO)	2.5	19.7	1,732	23,422		531,675
Poway (EDCO)	16.5	19.7	865	10,302	4,857	265,664
San Marcos (EDCO)	4.2	19.7	1,119	14,935		343,511
Solana Beach (EDCO)	14.6	29	247	2,687	1,267	75,974
Vista (EDCO)	14.6	19.7	921	18,601		282,737
Unincorporated	See Below		2,480	40,031	10,040	761,261
Total			11,473	165,977	22,571	3,522,087
U1	21.5	19.7	253	2,522	1,189	77,644
U2	12.5	14	125	2,002	944	38,230
U3	11.5	19.7	651	9,607	4,529	199,712
U4	5	37.2	526	7,166	3,378	161,491
U5	3	37.2	302	7,406		92,572
U6	12	14	191	3,603		58,726
U7	11	14	433	7,726		132,887

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.081	0.093	0.375	0.701	776.457	0.025	0.023	0.008	0.0921	0.1049	0.5197	0.4887	79.3560	0.0014	0.0012	0.0008	0.174	0.198	0.894	1.190	855.813	0.026	0.024	0.009
Escondido(EDCO)	0.087	0.100	0.402	0.753	833.646	0.027	0.025	0.009	0.1141	0.1299	0.6435	0.6050	98.2460	0.0017	0.0015	0.0010	0.202	0.229	1.046	1.358	931.892	0.028	0.026	0.010
Oceanside(WM)	0.095	0.108	0.436	0.816	904.030	0.029	0.027	0.010	0.1139	0.1296	0.6425	0.6040	98.0927	0.0017	0.0015	0.0010	0.209	0.238	1.079	1.420	1002.123	0.031	0.028	0.011
San Marcos(EDCO)	0.061	0.070	0.282	0.527	584.087	0.019	0.017	0.006	0.0726	0.0827	0.4097	0.3852	62.5503	0.0011	0.0010	0.0007	0.134	0.152	0.691	0.912	646.637	0.020	0.018	0.007
Vista(EDCO)	0.050	0.057	0.232	0.434	480.750	0.015	0.014	0.005	0.0904	0.1030	0.5102	0.4797	77.9033	0.0013	0.0012	0.0008	0.141	0.160	0.742	0.914	558.654	0.017	0.015	0.006

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(WM)	0.005	0.006	0.024	0.045	49.299	0.002	0.001	0.001	0.0092	0.0104	0.0516	0.0486	7.8848	0.0001	0.0001	0.0001	0.014	0.016	0.075	0.093	57.183	0.002	0.002	0.001
Encinitas(EDCO)	0.018	0.020	0.082	0.153	169.228	0.005	0.005	0.002	0.0569	0.0648	0.3212	0.3020	49.0381	0.0008	0.0008	0.0005	0.075	0.085	0.403	0.455	218.266	0.006	0.006	0.002
Poway(EDCO)	0.030	0.035	0.139	0.261	289.035	0.009	0.009	0.003	0.0501	0.0570	0.2826	0.2657	43.1466	0.0007	0.0007	0.0005	0.080	0.092	0.422	0.527	332.182	0.010	0.009	0.004
Solana Beach(WM)	0.007	0.008	0.032	0.060	66.712	0.002	0.002	0.001	0.0131	0.0149	0.0737	0.0693	11.2547	0.0002	0.0002	0.0001	0.020	0.023	0.106	0.130	77.967	0.002	0.002	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(WM)	0.00404468	0.004604557	0.01851596	0.065518013	43.87901383	0.00125684	0.001156	0.000465	0.0041	0.0046	0.0229	0.0260	3.7158	0.0001	0.0001	0.0000	0.0081	0.0092	0.0414	0.0916	47.5948	0.0013	0.0012	0.0005
Encinitas(EDCO)	0.02515503	0.028637085	0.11515619	0.407475682	272.89642	0.00781667	0.007191	0.002893	0.0041	0.0046	0.0229	0.0260	3.7158	0.0001	0.0001	0.0000	0.0292	0.0333	0.1381	0.4335	276.6122	0.0079	0.0073	0.0029
Poway(EDCO)	0.01503508	0.017116289	0.06882847	0.243546838	163.1092682	0.004672	0.004298	0.001729	0.0041	0.0046	0.0229	0.0260	3.7158	0.0001	0.0001	0.0000	0.0191	0.0218	0.0917	0.2696	166.8250	0.0047	0.0044	0.0018
Solana Beach(WM)	0.00577329	0.006572446	0.02642929	0.093519009	62.63196524	0.00179399	0.00165	0.000664	0.0041	0.0046	0.0229	0.0260	3.7158	0.0001	0.0001	0.0000	0.0098	0.0112	0.0493	0.1196	66.3477	0.0019	0.0017	0.0007

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U5	0.017	0.019	0.076	0.142	157.404	0.005	0.005	0.002	0.0360	0.0410	0.2031	0.1910	31.0159	0.0005	0.0005	0.0003	0.0525	0.0598	0.2791	0.3331	188.4198	0.0056	0.0051	0.0020
U6	0.010	0.012	0.048	0.090	99.854	0.003	0.003	0.001	0.0175	0.0199	0.0988	0.0929	15.0888	0.0003	0.0002	0.0002	0.0280	0.0319	0.1470	0.1831	114.9424	0.0035	0.0032	0.0012
U7	0.024	0.027	0.109	0.204	225.954	0.007	0.007	0.002	0.0376	0.0428	0.2119	0.1992	32.3572	0.0006	0.0005	0.0003	0.0613	0.0698	0.3209	0.4032	258.3108	0.0078	0.0072	0.0027

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.010	0.011	0.044	0.083	92.196	0.003	0.003	0.001	0.0123	0.0140	0.0692	0.0650	10.5622	0.0002	0.0002	0.0001	0.0219	0.0250	0.1137	0.1483	102.7583	0.0031	0.0029	0.0011
U2	0.004	0.005	0.021	0.038	42.542	0.001	0.001	0.000	0.0097	0.0111	0.0549	0.0516	8.3827	0.0001	0.0001	0.0001	0.0142	0.0162	0.0754	0.0900	50.9243	0.0015	0.0014	0.0005
U3	0.020	0.022	0.091	0.170	187.864	0.006	0.006	0.002	0.0467	0.0532	0.2635	0.2478	40.2369	0.0007	0.0006	0.0004	0.0664	0.0756	0.3542	0.4174	228.1005	0.0067	0.0062	0.0024
U4	0.006	0.007	0.029	0.055	60.920	0.002	0.002	0.001	0.0348	0.0397	0.1965	0.1848	30.0100	0.0005	0.0005	0.0003	0.0412	0.0469	0.2259	0.2398	90.9296	0.0025	0.0023	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.004	0.004	0.017	0.060	39.929	0.001	0.001	0.000	0.0055	0.0062	0.0307	0.0349	4.9775	0.0001	0.0001	0.0001	0.0091	0.0104	0.0475	0.0945	44.9063	0.0012	0.0011	0.0005
U2	0.002	0.002	0.010	0.034	22.520	0.001	0.001	0.000	0.0043	0.0049	0.0244	0.0277	3.9504	0.0001	0.0001	0.0000	0.0064	0.0073	0.0339	0.0613	26.4709	0.0007	0.0007	0.0003
U3	0.014	0.016	0.064	0.227	152.110	0.004	0.004	0.002	0.0208	0.0237	0.1169	0.1329	18.9619	0.0003	0.0003	0.0002	0.0348	0.0396	0.1811	0.3600	171.0715	0.0047	0.0043	0.0018
U4	0.020	0.022	0.090	0.320	214.228	0.006	0.006	0.002	0.0155	0.0176	0.0872	0.0991	14.1424	0.0003	0.0002	0.0001	0.0352	0.0401	0.1776	0.4190	228.3699	0.0064	0.0059	0.0024

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.174	0.198	0.894	1.190	856	0.026	0.024	0.009
Del Mar (WM)	0.022	0.026	0.117	0.185	105	0.003	0.003	0.001
Encinitas (EDCO)	0.104	0.118	0.541	0.888	495	0.014	0.013	0.005
Escondido (EDCO)	0.202	0.229	1.046	1.358	932	0.028	0.026	0.010
Oceanside (WM)	0.209	0.238	1.079	1.420	1002	0.031	0.028	0.011
Poway (EDCO)	0.100	0.113	0.514	0.796	499	0.015	0.014	0.005
San Marcos (EDCO)	0.134	0.152	0.691	0.912	647	0.020	0.018	0.007
Solana Beach (WM)	0.030	0.034	0.155	0.249	144	0.004	0.004	0.002
Vista (EDCO)	0.141	0.160	0.742	0.914	559	0.017	0.015	0.006
Unincorporated	0.371	0.423	1.956	2.750	1505	0.044	0.040	0.016
Total	**1.486**	**1.691**	**7.735**	**11**	**6743**	**0.201**	**0.185**	**0.071**

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (WM)	93,793	306	62	29	91	29.6	Direct	62
Del Mar (WM)	9,319	30	6	3	9	47.9	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	38.7	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	25.4	Direct	76
Oceanside (WM)	115,938	378	76	36	112	26.4	Direct	76
Poway (EDCO)	50,996	166	34	16	49	37.9	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	28.2	Direct	49
Solana Beach (WM)	13,302	43	9	4	13	44.8	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	20.7	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	160
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	44.8	Transfer	12
U2	9,908	32	7	3	10	18.2	Direct	7
U3	47,557	155	31	15	46	35.3	Transfer	46
U4	35,470	116	23	11	34	43	Transfer	34
U5	36,658	119	24	11	35	6.7	Direct	24
U6	17,834	58	12	6	17	25.4	Direct	12
U7	38,244	125	25	12	37	25.7	Direct	25

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to GCLF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	24.9	1,827	18,948		560,861
Del Mar (EWM)	15.4	35.9	198	1,883	888	60,856
Encinitas (EDCO)	8.5	35.9	970	11,709	5,520	297,691
Escondido (EDCO)	1.4	25.1	1,941	23,458		595,844
Oceanside (EWM)	2.5	24.9	2,014	23,422		618,336
Poway (EDCO)	16.5	25.1	951	10,302	4,857	291,891
San Marcos (EDCO)	4.2	25.1	1,372	14,935		421,175
Solana Beach (EWM)	14.6	35.9	276	2,687	1,267	84,715
Vista (EDCO)	14.6	25.1	1,254	18,601		385,044
Unincorporated	See Below		2,815	40,031	9,096	864,182
Total			13,618	165,977	21,627	4,180,595
U1	21.5	24.9	273	2,522	1,189	83,826
U2	12.5	7.9	119	2,002		36,428
U3	11.5	25.1	730	9,607	4,529	224,169
U4	5	42.7	587	7,166	3,378	180,071
U5	3	42.7	162	7,406		49,619
U6	12	7.9	298	3,603		91,511
U7	11	7.9	647	7,726		198,558

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.100	0.114	0.460	0.861	953.656	0.030	0.028	0.010	0.0921	0.1049	0.5197	0.4887	79.3560	0.0014	0.0012	0.0008	0.192	0.219	0.980	1.350	1033.012	0.032	0.029	0.011
Escondido(EDCO)	0.106	0.121	0.489	0.915	1013.139	0.032	0.030	0.011	0.1141	0.1299	0.6435	0.6050	98.2460	0.0017	0.0015	0.0010	0.220	0.251	1.132	1.520	1111.385	0.034	0.031	0.012
Oceanside(EWM)	0.110	0.126	0.507	0.949	1051.383	0.034	0.031	0.011	0.1139	0.1296	0.6425	0.6040	98.0927	0.0017	0.0015	0.0010	0.224	0.255	1.150	1.553	1149.475	0.035	0.032	0.012
San Marcos(EDCO)	0.075	0.086	0.346	0.647	716.141	0.023	0.021	0.008	0.0726	0.0827	0.4097	0.3852	62.5503	0.0011	0.0010	0.0007	0.148	0.168	0.755	1.032	778.691	0.024	0.022	0.008
Vista(EDCO)	0.069	0.078	0.316	0.591	654.706	0.021	0.019	0.007	0.0904	0.1030	0.5102	0.4797	77.9033	0.0013	0.0012	0.0008	0.159	0.181	0.826	1.071	732.609	0.022	0.020	0.008

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(EWM)	0.005	0.006	0.024	0.045	49.299	0.002	0.001	0.001	0.0092	0.0104	0.0516	0.0486	7.8848	0.0001	0.0001	0.0001	0.014	0.016	0.075	0.093	57.183	0.002	0.002	0.001
Encinitas(EDCO)	0.018	0.020	0.082	0.153	169.228	0.005	0.005	0.002	0.0569	0.0648	0.3212	0.3020	49.0381	0.0008	0.0008	0.0005	0.075	0.085	0.403	0.455	218.266	0.006	0.006	0.002
Poway(EDCO)	0.030	0.035	0.139	0.261	289.035	0.009	0.009	0.003	0.0501	0.0570	0.2826	0.2657	43.1466	0.0007	0.0007	0.0005	0.080	0.092	0.422	0.527	332.182	0.010	0.009	0.004
Solana Beach(EWM)	0.007	0.008	0.032	0.060	66.712	0.002	0.002	0.001	0.0131	0.0149	0.0737	0.0693	11.2547	0.0002	0.0002	0.0001	0.020	0.023	0.106	0.130	77.967	0.002	0.002	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar(EWM)	0.005	0.006	0.023	0.081	54.319	0.002	0.001	0.001	0.0041	0.0046	0.0229	0.0260	3.7158	0.0001	0.0001	0.0000	0.009	0.010	0.046	0.107	58.035	0.002	0.001	0.001
Encinitas(EDCO)	0.031	0.035	0.143	0.504	337.827	0.010	0.009	0.004	0.0253	0.0288	0.1425	0.1619	23.1095	0.0004	0.0004	0.0002	0.056	0.064	0.285	0.666	360.936	0.010	0.009	0.004
Poway(EDCO)	0.019	0.022	0.088	0.310	207.819	0.006	0.005	0.002	0.0223	0.0254	0.1254	0.1425	20.3331	0.0004	0.0003	0.0002	0.041	0.047	0.213	0.453	228.153	0.006	0.006	0.002
Solana Beach(EWM)	0.007	0.008	0.033	0.116	77.534	0.002	0.002	0.001	0.0058	0.0066	0.0327	0.0372	5.3038	0.0001	0.0001	0.0001	0.013	0.015	0.065	0.153	82.838	0.002	0.002	0.001

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U2	0.007	0.007	0.030	0.056	61.941	0.002	0.002	0.001	0.0097	0.0111	0.0549	0.0516	8.3827	0.0001	0.0001	0.0001	0.0162	0.0185	0.0848	0.1075	70.323	0.0021	0.0020	0.0007
U5	0.009	0.010	0.041	0.076	84.368	0.003	0.002	0.001	0.0360	0.0410	0.2031	0.1910	31.0159	0.0005	0.0005	0.0003	0.0449	0.0511	0.2438	0.2672	115.384	0.0032	0.0030	0.0012
U6	0.016	0.019	0.075	0.140	155.600	0.005	0.005	0.002	0.0175	0.0199	0.0988	0.0929	15.0888	0.0003	0.0002	0.0002	0.0338	0.0385	0.1739	0.2334	170.689	0.0052	0.0048	0.0018
U7	0.035	0.040	0.163	0.305	337.617	0.011	0.010	0.004	0.0376	0.0428	0.2119	0.1992	32.3572	0.0006	0.0005	0.0003	0.0730	0.0831	0.3748	0.5041	369.974	0.0113	0.0104	0.0039

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.010	0.011	0.044	0.083	92.196	0.003	0.003	0.001	0.0123	0.0140	0.0692	0.0650	10.5622	0.0002	0.0002	0.0001	0.0219	0.0250	0.1137	0.1483	103	0.0031	0.0029	0.0011
U3	0.020	0.022	0.091	0.170	187.864	0.006	0.006	0.002	0.0467	0.0532	0.2635	0.2478	40.2369	0.0007	0.0006	0.0004	0.0664	0.0756	0.3542	0.4174	228	0.0067	0.0062	0.0024
U4	0.006	0.007	0.029	0.055	60.920	0.002	0.002	0.001	0.0348	0.0397	0.1965	0.1848	30.0100	0.0005	0.0005	0.0003	0.0412	0.0469	0.2259	0.2398	91	0.0025	0.0023	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.005	0.005	0.021	0.075	50.468	0.001	0.001	0.001	0.0055	0.0062	0.0307	0.0349	4.9775	0.0001	0.0001	0.0001	0.0101	0.0115	0.0520	0.1102	55	0.0015	0.0014	0.0006
U3	0.018	0.020	0.082	0.289	193.805	0.006	0.005	0.002	0.0208	0.0237	0.1169	0.1329	18.9619	0.0003	0.0003	0.0002	0.0386	0.0440	0.1987	0.4222	213	0.0059	0.0054	0.0023
U4	0.023	0.026	0.104	0.367	245.901	0.007	0.006	0.003	0.0155	0.0176	0.0872	0.0991	14.1424	0.0003	0.0002	0.0001	0.0382	0.0435	0.1910	0.4663	260	0.0073	0.0067	0.0028

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.192	0.219	0.980	1.350	1033	0.032	0.029	0.011
Del Mar (WM)	0.023	0.027	0.121	0.200	115	0.003	0.003	0.001
Encinitas (EDCO)	0.131	0.149	0.688	1.121	579	0.016	0.015	0.006
Escondido (EDCO)	0.220	0.251	1.132	1.520	1111	0.034	0.031	0.012
Oceanside (WM)	0.224	0.255	1.150	1.553	1149	0.035	0.032	0.012
Poway (EDCO)	0.122	0.139	0.635	0.979	560	0.016	0.015	0.006
San Marcos (EDCO)	0.148	0.168	0.755	1.032	779	0.024	0.022	0.008
Solana Beach (WM)	0.033	0.038	0.171	0.282	161	0.005	0.004	0.002
Vista (EDCO)	0.159	0.181	0.826	1.071	733	0.022	0.020	0.008
Unincorporated	0.368	0.419	1.928	2.809	1606	0.047	0.043	0.017
Total	**1.621**	**1.846**	**8.387**	**12**	**7827**	**0.235**	**0.216**	**0.083**

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	12.8	Direct	62
Del Mar (EWM)	9,319	30	6	3	9	29.0	Direct	6
Encinitas (EDCO)	57,959	189	38	18	56	21.9	Direct	38
Escondido (EDCO)	116,119	378	76	36	112	16.5	Direct	76
Oceanside (EWM)	115,938	378	76	36	112	14.6	Direct	76
Poway (EDCO)	50,996	166	34	16	49	28.5	Direct	34
San Marcos (EDCO)	73,930	241	49	23	72	10.4	Direct	49
Solana Beach (EWM)	13,302	43	9	4	13	28.0	Direct	9
Vista (EDCO)	92,076	300	61	29	89	4.7	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	145
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	33	Transfer	12
U2	9,908	32	7	3	10	25.5	Direct	7
U3	47,557	155	31	15	46	20.3	Direct	31
U4	35,470	116	23	11	34	34	Transfer	34
U5	36,658	119	24	11	35	14	Direct	24
U6	17,834	58	12	6	17	19.4	Direct	12
U7	38,244	125	25	12	37	6.1	Direct	25

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EWM)	3.5	11.2	790	18,948		242,535
Del Mar (EWM)	15.4	12.1	178	1,883		54,598
Encinitas (EDCO)	8.5	12.1	835	11,709		256,426
Escondido (EDCO)	1.4	16.6	1,261	23,458		387,064
Oceanside (EWM)	2.5	11.2	1,114	23,422		341,958
Poway (EDCO)	16.5	16.6	956	10,302		293,613
San Marcos (EDCO)	4.2	16.6	506	14,935		155,327
Solana Beach (EWM)	14.6	12.1	245	2,687		75,244
Vista (EDCO)	14.6	16.6	285	18,601		87,425
Unincorporated	See Below		2,230	40,031	18,872	684,656
Total			8,400	165,977	18,872	2,578,846
U1	21.5	11.2	220	2,522	1,189	67,538
U2	12.5	13.8	166	2,002		51,040
U3	11.5	16.6	635	9,607		195,031
U4	5	33.9	490	7,166	3,378	150,344
U5	3	33.9	338	7,406		103,680
U6	12	13.8	228	3,603		69,894
U7	11	13.8	154	7,726		47,129

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.043	0.049	0.199	0.372	412.392	0.013	0.012	0.004	0.0921	0.1049	0.5197	0.4887	79.4	0.0014	0.0012	0.0008	0.135	0.154	0.719	0.861	491.748	0.015	0.013	0.005
Del Mar(WM)	0.010	0.011	0.045	0.084	92.835	0.003	0.003	0.001	0.0092	0.0104	0.0516	0.0486	7.9	0.0001	0.0001	0.0001	0.019	0.022	0.096	0.132	100.720	0.003	0.003	0.001
Encinitas(EDCO)	0.046	0.052	0.210	0.394	436.012	0.014	0.013	0.005	0.0569	0.0648	0.3212	0.3020	49.0	0.0008	0.0008	0.0005	0.103	0.117	0.532	0.696	485.050	0.015	0.014	0.005
Escondido(EDCO)	0.069	0.079	0.318	0.594	658.141	0.021	0.019	0.007	0.1141	0.1299	0.6435	0.6050	98.2	0.0017	0.0015	0.0010	0.183	0.208	0.961	1.199	756.387	0.023	0.021	0.008
Oceanside(WM)	0.061	0.069	0.281	0.525	581.447	0.019	0.017	0.006	0.1139	0.1296	0.6425	0.6040	98.1	0.0017	0.0015	0.0010	0.175	0.199	0.923	1.129	679.539	0.020	0.019	0.007
Poway(EDCO)	0.052	0.060	0.241	0.451	499.242	0.016	0.015	0.005	0.0501	0.0570	0.2826	0.2657	43.1	0.0007	0.0007	0.0005	0.102	0.117	0.523	0.716	542.389	0.017	0.015	0.006
San Marcos(EDCO)	0.028	0.032	0.127	0.238	264.109	0.008	0.008	0.003	0.0726	0.0827	0.4097	0.3852	62.6	0.0011	0.0010	0.0007	0.100	0.114	0.537	0.624	326.659	0.010	0.009	0.003
Solana Beach(WM)	0.013	0.015	0.062	0.116	127.941	0.004	0.004	0.001	0.0131	0.0149	0.0737	0.0693	11.3	0.0002	0.0002	0.0001	0.026	0.030	0.135	0.185	139.196	0.004	0.004	0.001
Vista(EDCO)	0.016	0.018	0.072	0.134	148.653	0.005	0.004	0.002	0.0904	0.1030	0.5102	0.4797	77.9	0.0013	0.0012	0.0008	0.106	0.121	0.582	0.614	226.556	0.006	0.006	0.002

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U2	0.009	0.010	0.042	0.078	86.785	0.003	0.003	0.001	0.0097	0.0111	0.0549	0.0516	8.4	0.0001	0.0001	0.0001	0.0188	0.0214	0.0968	0.1300	95.167	0.0029	0.0027	0.0010
U3	0.035	0.040	0.160	0.299	331.620	0.011	0.010	0.004	0.0467	0.0532	0.2635	0.2478	40.2	0.0007	0.0006	0.0004	0.0815	0.0928	0.4235	0.5472	371.857	0.0113	0.0104	0.0039
U5	0.019	0.021	0.085	0.159	176.292	0.006	0.005	0.002	0.0360	0.0410	0.2031	0.1910	31.0	0.0005	0.0005	0.0003	0.0545	0.0621	0.2882	0.3501	207.308	0.0062	0.0057	0.0022
U6	0.012	0.014	0.057	0.107	118.844	0.004	0.003	0.001	0.0175	0.0199	0.0988	0.0929	15.1	0.0003	0.0002	0.0002	0.0300	0.0341	0.1562	0.2002	133.933	0.0041	0.0037	0.0014
U7	0.008	0.010	0.039	0.072	80.135	0.003	0.002	0.001	0.0376	0.0428	0.2119	0.1992	32.4	0.0006	0.0005	0.0003	0.0460	0.0523	0.2506	0.2716	112.492	0.0031	0.0029	0.0012

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00967528	0.01101457	0.0444837	0.083236788	92.19609107	0.00294765	0.002712	0.000977	0.0123	0.0140	0.0692	0.0650	10.6	0.0002	0.0002	0.0001	0.0219	0.0250	0.1137	0.1483	103	0.0031	0.0029	0.0011
U4	0.00639304	0.00727799	0.0293931	0.054999576	60.91952861	0.00194769	0.001792	0.000646	0.0348	0.0397	0.1965	0.1848	30.0	0.0005	0.0005	0.0003	0.0412	0.0469	0.2259	0.2398	91	0.0025	0.0023	0.0010

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.0020925	0.00238215	0.0095792	0.033895475	22.70062812	0.00065022	0.000598	0.000241	0.0055	0.0062	0.0307	0.0349	5.0	0.0001	0.0001	0.0001	0.0075	0.0086	0.0403	0.0688	28	0.0007	0.0007	0.0003
U4	0.0179953	0.02048628	0.0823799	0.291498207	195.2234715	0.00559185	0.005145	0.002069	0.0155	0.0176	0.0872	0.0991	14.1	0.0003	0.0002	0.0001	0.0335	0.0381	0.1696	0.3906	209	0.0059	0.0054	0.0022

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.135	0.154	0.719	0.861	492	0.015	0.013	0.005
Del Mar (WM)	0.019	0.022	0.096	0.132	101	0.003	0.003	0.001
Encinitas (EDCO)	0.103	0.117	0.532	0.696	485	0.015	0.014	0.005
Escondido (EDCO)	0.183	0.208	0.961	1.199	756	0.023	0.021	0.008
Oceanside (WM)	0.175	0.199	0.923	1.129	680	0.020	0.019	0.007
Poway (EDCO)	0.102	0.117	0.523	0.716	542	0.017	0.015	0.006
San Marcos (EDCO)	0.100	0.114	0.537	0.624	327	0.010	0.009	0.003
Solana Beach (WM)	0.026	0.030	0.135	0.185	139	0.004	0.004	0.001
Vista (EDCO)	0.106	0.121	0.582	0.614	227	0.006	0.006	0.002
Unincorporated	0.335	0.381	1.765	2.347	1351	0.040	0.037	0.014
Total	**1.285**	**1.463**	**6.773**	**9**	**5100**	**0.152**	**0.140**	**0.054**

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	17.9	Direct	62
Del Mar (EWM)	9,319	30	6	3	9	34.0	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	27.0	Direct	38
Escondido (EDCO)	116,119	378	76	36	112	11.5	Direct	76
Oceanside (EWM)	115,938	378	76	36	112	19.6	Direct	76
Poway (EDCO)	50,996	166	34	16	49	24.6	Direct	34
San Marcos (EDCO)	73,930	241	49	23	72	6.5	Direct	49
Solana Beach (EWM)	13,302	43	9	4	13	33.0	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	8.9	Direct	61
Unincorporated	198,154	645	130	61	192	30.0	See Below	137
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	38.5	Transfer	12
U2	9,908	32	7	3	10	35.5	Transfer	10
U3	47,557	155	31	15	46	22.2	Direct	31
U4	35,470	116	23	11	34	30	Direct	23
U5	36,658	119	24	11	35	23.9	Direct	24
U6	17,834	58	12	6	17	20.7	Direct	12
U7	38,244	125	25	12	37	7.9	Direct	25

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Tonnage Annual VMT
Carlsbad (EDCO)	3.5	18.7	1,105	18,948		339,169
Del Mar (EDCO)	15.4	13.5	133	1,883	888	40,975
Encinitas (EDCO)	8.5	13.5	1,030	11,709		316,141
Escondido (EDCO)	1.4	13.1	879	23,458		269,772
Oceanside (EDCO)	2.5	18.7	1,495	23,422		459,068
Poway (EDCO)	16.5	13.1	826	10,302		253,434
San Marcos (EDCO)	4.2	13.1	316	14,935		97,079
Solana Beach (EDCO)	14.6	13.5	184	2,687	1,267	56,337
Vista (EDCO)	14.6	13.1	539	18,601		165,550
Unincorporated	See Below		2,763	40,031	2,133	848,358
Total			9,270	165,977	4,287	2,845,885
U1	21.5	18.7	249	2,522	1,189	76,455
U2	12.5	7.9	106	2,002	944	32,474
U3	11.5	13.1	695	9,607		213,285
U4	5	30.6	696	7,166		213,534
U5	3	30.6	577	7,406		176,997
U6	12	7.9	243	3,603		74,578
U7	11	7.9	199	7,726		61,035

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Annual Direct Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.061	0.069	0.278	0.521	576.704	0.018	0.017	0.006	0.0921	0.1049	0.5197	0.4887	79.4	0.0014	0.0012	0.0008	0.153	0.174	0.798	1.009	656.060	0.020	0.018	0.007
Encinitas (EDCO)	0.056	0.064	0.259	0.485	537.549	0.017	0.016	0.006	0.0569	0.0648	0.3212	0.3020	49.0	0.0008	0.0008	0.0005	0.113	0.129	0.581	0.787	586.587	0.018	0.017	0.006
Escondido (EDCO)	0.048	0.055	0.221	0.414	458.705	0.015	0.013	0.005	0.1141	0.1299	0.6435	0.6050	98.2	0.0017	0.0015	0.0010	0.162	0.185	0.865	1.019	556.951	0.016	0.015	0.006
Oceanside (WM)	0.082	0.093	0.377	0.705	780.572	0.025	0.023	0.008	0.1139	0.1296	0.6425	0.6040	98.1	0.0017	0.0015	0.0010	0.196	0.223	1.019	1.309	878.665	0.027	0.025	0.009
Poway (EDCO)	0.045	0.051	0.208	0.389	430.925	0.014	0.013	0.005	0.0501	0.0570	0.2826	0.2657	43.1	0.0007	0.0007	0.0005	0.095	0.109	0.491	0.655	474.072	0.015	0.013	0.005
San Marcos (EDCO)	0.017	0.020	0.080	0.149	165.068	0.005	0.005	0.002	0.0726	0.0827	0.4097	0.3852	62.6	0.0011	0.0010	0.0007	0.090	0.102	0.489	0.534	227.618	0.006	0.006	0.002
Vista (EDCO)	0.030	0.034	0.136	0.254	281.492	0.009	0.008	0.003	0.0904	0.1030	0.5102	0.4797	77.9	0.0013	0.0012	0.0008	0.120	0.137	0.646	0.734	359.395	0.010	0.010	0.004

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.005	0.006	0.024	0.045	49.299	0.002	0.001	0.001	0.0092	0.0104	0.0516	0.0486	7.9	0.0001	0.0001	0.0001	0.014	0.016	0.075	0.093	57.183	0.002	0.002	0.001
Solana Beach (WM)	0.007	0.008	0.032	0.060	66.712	0.002	0.002	0.001	0.0131	0.0149	0.0737	0.0693	11.3	0.0002	0.0002	0.0001	0.020	0.023	0.106	0.130	77.967	0.002	0.002	0.001

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Del Mar (WM)	0.002	0.002	0.009	0.030	20.426	0.001	0.001	0.000	0.0041	0.0046	0.0229	0.0260	3.7	0.0001	0.0001	0.0000	0.0060	0.0068	0.0315	0.0565	24.1422	0.0007	0.0006	0.0003
Solana Beach (WM)	0.003	0.003	0.012	0.044	29.156	0.001	0.001	0.000	0.0058	0.0066	0.0327	0.0372	5.3	0.0001	0.0001	0.0001	0.0085	0.0097	0.0450	0.0807	34.4601	0.0009	0.0009	0.0004

Unincorporated Regions - Annual Direct Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U3	0.038	0.043	0.175	0.327	362.658	0.012	0.011	0.004	0.0467	0.0532	0.2635	0.2478	40.2	0.0007	0.0006	0.0004	0.0848	0.0965	0.4385	0.5752	402.895	0.0123	0.0113	0.0043
U4	0.038	0.043	0.175	0.328	363.080	0.012	0.011	0.004	0.0348	0.0397	0.1965	0.1848	30.0	0.0005	0.0005	0.0003	0.0729	0.0830	0.3717	0.5126	393.090	0.0121	0.0112	0.0042
U5	0.032	0.036	0.145	0.272	300.956	0.010	0.009	0.003	0.0360	0.0410	0.2031	0.1910	31.0	0.0005	0.0005	0.0003	0.0676	0.0769	0.3483	0.4627	331.972	0.0102	0.0093	0.0035
U6	0.013	0.015	0.061	0.114	126.808	0.004	0.004	0.001	0.0175	0.0199	0.0988	0.0929	15.1	0.0003	0.0002	0.0002	0.0308	0.0351	0.1600	0.2074	141.897	0.0043	0.0040	0.0015
U7	0.011	0.012	0.050	0.094	103.781	0.003	0.003	0.001	0.0376	0.0428	0.2119	0.1992	32.4	0.0006	0.0005	0.0003	0.0485	0.0552	0.2620	0.2929	136.138	0.0039	0.0036	0.0014

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.010	0.011	0.044	0.083	92.196	0.003	0.003	0.001	0.0123	0.0140	0.0692	0.0650	10.6	0.0002	0.0002	0.0001	0.0219	0.0250	0.1137	0.1483	102.7583	0.0031	0.0029	0.0011
U2	0.004	0.005	0.021	0.038	42.542	0.001	0.001	0.000	0.0097	0.0111	0.0549	0.0516	8.4	0.0001	0.0001	0.0001	0.0142	0.0162	0.0754	0.0900	50.9243	0.0015	0.0014	0.0005

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.004	0.016	0.057	37.902	0.001	0.001	0.000	0.0055	0.0055	0.0055	0.0055	0.0	0.0055	0.0055	0.0055	0.0089	0.0094	0.0214	0.0620	37.9074	0.0065	0.0065	0.0059
U2	0.001	0.001	0.005	0.019	12.708	0.000	0.000	0.000	0.0043	0.0043	0.0043	0.0043	0.0	0.0043	0.0043	0.0043	0.0055	0.0057	0.0097	0.0233	12.7123	0.0047	0.0047	0.0045

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculations - Franchised Haulers
Future Interim and Final Operational Years

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.153	0.174	0.798	1.009	656	0.020	0.018	0.007
Del Mar (WM)	0.020	0.023	0.107	0.150	81	0.002	0.002	0.001
Encinitas (EDCO)	0.113	0.129	0.581	0.787	586.587	0.018	0.017	0.006
Escondido (EDCO)	0.162	0.185	0.865	1.019	557	0.016	0.015	0.006
Oceanside (WM)	0.196	0.223	1.019	1.309	879	0.027	0.025	0.009
Poway (EDCO)	0.095	0.109	0.491	0.655	474.072	0.015	0.013	0.005
San Marcos (EDCO)	0.090	0.102	0.489	0.534	228	0.006	0.006	0.002
Solana Beach (WM)	0.029	0.033	0.151	0.210	112	0.003	0.003	0.001
Vista (EDCO)	0.120	0.137	0.646	0.734	359	0.010	0.010	0.004
Unincorporated	0.355	0.403	1.801	2.374	1610	0.059	0.055	0.027
Total	**1.333**	**1.516**	**6.947**	**9**	**5543**	**0.176**	**0.163**	**0.069**

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Direct Haul Truck	**9.9**	T7 SWCV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Disposed (Extrapolated)	Daily Avg Tons	Average 9.9 Ton Truck One-Way Trips/day	Average Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to LF (mi)	Direct or Transfer?	Avg Tonnage One-Way Trips/day
Carlsbad (EWM)	93,793	306	62	29	91	55.8	Transfer	91
Del Mar (EWM)	9,319	30	6	3	9	41.6	Transfer	9
Encinitas (EDCO)	57,959	189	38	18	56	47.5	Transfer	56
Escondido (EDCO)	116,119	378	76	36	112	51.7	Transfer	112
Oceanside (EWM)	115,938	378	76	36	112	59.2	Transfer	112
Poway (EDCO)	50,996	166	34	16	49	42.6	Transfer	49
San Marcos (EDCO)	73,930	241	49	23	72	55.5	Transfer	72
Solana Beach (EWM)	13,302	43	9	4	13	42.8	Transfer	13
Vista (EDCO)	92,076	300	61	29	89	62.0	Transfer	89
Unincorporated	198,154	645	130	61	192	30.0	See Below	192
Total	821,585	2,676	541	255	796	See Below		
U1	12,484	41	8	4	12	78.6	Transfer	12
U2	9,908	32	7	3	10	87.1	Transfer	10
U3	47,557	155	31	15	46	48	Transfer	46
U4	35,470	116	23	11	34	50	Transfer	34
U5	36,658	119	24	11	35	75.6	Transfer	35
U6	17,834	58	12	6	17	62.3	Transfer	17
U7	38,244	125	25	12	37	60.9	Transfer	37

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad (EWM)	3.5	59.7	1,953	18,948	8,933	599,596
Del Mar (EWM)	15.4	56.9	259	1,883	888	79,495
Encinitas (EDCO)	8.5	56.9	1,347	11,709	5,520	413,610
Escondido (EDCO)	1.4	51.8	1,973	23,458	11,059	605,697
Oceanside (EWM)	2.5	59.7	2,338	23,422	11,042	717,745
Poway (EDCO)	16.5	51.8	1,373	10,302	4,857	421,566
San Marcos (EDCO)	4.2	51.8	1,392	14,935	7,041	427,447
Solana Beach (EWM)	14.6	56.9	363	2,687	1,267	111,319
Vista (EDCO)	14.6	51.8	2,364	18,601	8,769	725,817
Unincorporated	See Below		4,949	40,031	18,872	1,519,305
Total			18,311	165,977	78,246	5,621,597
U1	21.5	59.7	408	2,522	1,189	125,201
U2	12.5	76.9	318	2,002	944	97,581
U3	11.5	51.8	1,124	9,607	4,529	345,100
U4	5	51.6	684	7,166	3,378	210,135
U5	3	51.6	659	7,406	3,491	202,367
U6	12	76.9	566	3,603	1,698	173,845
U7	11	76.9	1,189	7,726	3,642	365,075

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Annual City to Transfer Station Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.006	0.006	0.026	0.048	53.160	0.002	0.002	0.001	0.043	0.049	0.245	0.230	37.411	0.001	0.001	0.000	0.049	0.056	0.271	0.278	90.571	0.002	0.002	0.001
Del Mar(BWM)	0.002	0.003	0.011	0.021	23.241	0.001	0.001	0.000	0.004	0.005	0.024	0.023	3.717	0.000	0.000	0.000	0.007	0.008	0.036	0.044	26.958	0.001	0.001	0.000
Encinitas(EDCO)	0.008	0.010	0.038	0.072	79.779	0.003	0.002	0.001	0.027	0.031	0.151	0.142	23.118	0.000	0.000	0.000	0.035	0.040	0.190	0.214	102.897	0.003	0.003	0.001
Escondido(EDCO)	0.003	0.003	0.013	0.024	26.326	0.001	0.001	0.000	0.054	0.061	0.303	0.285	46.316	0.001	0.001	0.000	0.057	0.064	0.316	0.309	72.642	0.002	0.002	0.001
Oceanside(BWM)	0.005	0.006	0.023	0.042	46.937	0.002	0.001	0.000	0.054	0.061	0.303	0.285	46.244	0.001	0.001	0.000	0.059	0.067	0.326	0.327	93.180	0.002	0.002	0.001
Poway(EDCO)	0.014	0.016	0.066	0.123	136.259	0.004	0.004	0.001	0.024	0.027	0.133	0.125	20.341	0.000	0.000	0.000	0.038	0.043	0.199	0.248	156.600	0.005	0.004	0.002
San Marcos(EDCO)	0.005	0.006	0.024	0.045	50.282	0.002	0.001	0.001	0.034	0.039	0.193	0.182	29.488	0.001	0.000	0.000	0.040	0.045	0.217	0.227	79.770	0.002	0.002	0.001
Solana Beach(BWM)	0.003	0.004	0.015	0.028	31.450	0.001	0.001	0.000	0.006	0.007	0.035	0.033	5.306	0.000	0.000	0.000	0.009	0.011	0.050	0.061	36.756	0.001	0.001	0.000
Vista(EDCO)	0.023	0.026	0.105	0.197	217.693	0.007	0.006	0.002	0.043	0.049	0.241	0.226	36.726	0.001	0.001	0.000	0.065	0.075	0.346	0.423	254.419	0.008	0.007	0.003

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.084	0.095	0.384	1.357	909.118	0.026	0.024	0.010	0.041	0.047	0.231	0.262	37.397	0.001	0.001	0.000	0.12	0.14	0.61	1.62	946.52	0.03	0.02	0.01
Del Mar(BWM)	0.008	0.009	0.036	0.129	86.094	0.002	0.002	0.001	0.004	0.005	0.023	0.026	3.716	0.000	0.000	0.000	0.01	0.01	0.06	0.15	89.81	0.00	0.00	0.00
Encinitas(EDCO)	0.049	0.056	0.226	0.799	535.442	0.015	0.014	0.006	0.025	0.029	0.143	0.162	23.110	0.000	0.000	0.000	0.07	0.09	0.37	0.96	558.55	0.02	0.01	0.01
Escondido(EDCO)	0.090	0.102	0.412	1.458	976.587	0.028	0.026	0.010	0.051	0.058	0.285	0.324	46.299	0.001	0.001	0.000	0.14	0.16	0.70	1.78	1,022.89	0.03	0.03	0.01
Oceanside(BWM)	0.104	0.118	0.474	1.678	1123.769	0.032	0.030	0.012	0.051	0.058	0.285	0.324	46.227	0.001	0.001	0.000	0.15	0.18	0.76	2.00	1,170.00	0.03	0.03	0.01
Poway(EDCO)	0.040	0.045	0.181	0.640	428.886	0.012	0.011	0.005	0.022	0.025	0.125	0.142	20.333	0.000	0.000	0.000	0.06	0.07	0.31	0.78	449.22	0.01	0.01	0.00
San Marcos(EDCO)	0.057	0.065	0.262	0.928	621.763	0.018	0.016	0.007	0.032	0.037	0.182	0.207	29.477	0.001	0.000	0.000	0.09	0.10	0.44	1.13	651.24	0.02	0.02	0.01
Solana Beach(BWM)	0.011	0.013	0.052	0.183	122.888	0.004	0.003	0.001	0.006	0.007	0.033	0.037	5.304	0.000	0.000	0.000	0.02	0.02	0.08	0.22	128.19	0.00	0.00	0.00
Vista(EDCO)	0.071	0.081	0.327	1.156	774.375	0.022	0.020	0.008	0.040	0.046	0.226	0.257	36.712	0.001	0.001	0.000	0.11	0.13	0.55	1.41	811.09	0.02	0.02	0.01

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.00967528	0.011014567	0.04448369	0.083236788	92.19609107	0.00294765	0.002712	0.000977	0.0123	0.0140	0.0692	0.0650	10.5622	0.0002	0.0002	0.0001	0.0219	0.0250	0.1137	0.1483	102.7583	0.0031	0.0029	0.0011
U2	0.00446441	0.005082395	0.02052588	0.038407525	42.54157026	0.00136012	0.001251	0.000451	0.0097	0.0111	0.0549	0.0516	8.3827	0.0001	0.0001	0.0001	0.0142	0.0162	0.0754	0.0900	50.9243	0.0015	0.0014	0.0005
U3	0.01971485	0.022443858	0.09064229	0.16960763	187.8635743	0.00600628	0.005526	0.001991	0.0467	0.0532	0.2635	0.2478	40.2369	0.0007	0.0006	0.0004	0.0664	0.0756	0.3542	0.4174	228.1005	0.0067	0.0062	0.0024
U4	0.00639304	0.00727799	0.02939306	0.054999576	60.91952861	0.00194769	0.001792	0.000646	0.0348	0.0397	0.1965	0.1848	30.0100	0.0005	0.0005	0.0003	0.0412	0.0469	0.2259	0.2398	90.9296	0.0025	0.0023	0.0010
U5	0.0039644	0.004513167	0.01822698	0.034105882	37.77691439	0.00120778	0.001111	0.0004	0.0360	0.0410	0.2031	0.1910	31.0159	0.0005	0.0005	0.0003	0.0400	0.0455	0.2214	0.2251	68.7929	0.0017	0.0016	0.0007
U6	0.00771451	0.008782379	0.03546872	0.066368203	73.51183341	0.00235028	0.002162	0.000779	0.0175	0.0199	0.0988	0.0929	15.0888	0.0003	0.0002	0.0002	0.0252	0.0287	0.1343	0.1593	88.6007	0.0026	0.0024	0.0009
U7	0.01516472	0.017263881	0.06972232	0.130462681	144.5052059	0.00462005	0.00425	0.001532	0.0376	0.0428	0.2119	0.1992	32.3572	0.0006	0.0005	0.0003	0.0527	0.0600	0.2816	0.3297	176.8624	0.0052	0.0048	0.0019

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.01115376	0.012697703	0.05106033	0.18067499	121.0024552	0.00346592	0.003189	0.001283	0.0055	0.0062	0.0307	0.0349	4.9775	0.0001	0.0001	0.0001	0.0166	0.0189	0.0818	0.2155	125.9800	0.0036	0.0033	0.0013
U2	0.01140257	0.012980954	0.05219935	0.184705362	123.7016938	0.00354323	0.00326	0.001311	0.0043	0.0049	0.0244	0.0277	3.9504	0.0001	0.0001	0.0000	0.0157	0.0179	0.0766	0.2124	127.6521	0.0036	0.0033	0.0014
U3	0.0368678	0.041971189	0.16877564	0.597205997	399.9634478	0.01145629	0.01054	0.00424	0.0208	0.0237	0.1169	0.1329	18.9619	0.0003	0.0003	0.0002	0.0577	0.0656	0.2857	0.7301	418.9253	0.0118	0.0109	0.0044
U4	0.02739107	0.031182649	0.12539248	0.443696386	297.1543106	0.0085115	0.007831	0.00315	0.0155	0.0176	0.0872	0.0991	14.1424	0.0003	0.0002	0.0001	0.0429	0.0488	0.2126	0.5428	311.2967	0.0088	0.0081	0.0033
U5	0.02830921	0.032227877	0.12959558	0.45856889	307.1147903	0.0087968	0.008093	0.003256	0.0160	0.0182	0.0901	0.1024	14.6165	0.0003	0.0002	0.0002	0.0443	0.0505	0.2197	0.5610	321.7312	0.0091	0.0083	0.0034
U6	0.02052462	0.023365717	0.09395883	0.332469651	222.6630488	0.00637782	0.005868	0.00236	0.0078	0.0089	0.0438	0.0498	7.1107	0.0001	0.0001	0.0001	0.0283	0.0322	0.1378	0.3823	229.7738	0.0065	0.0060	0.0024
U7	0.04401391	0.050106483	0.2014895	0.712962696	477.4885379	0.01367687	0.012583	0.005062	0.0167	0.0190	0.0940	0.1068	15.2485	0.0003	0.0003	0.0002	0.0607	0.0691	0.2955	0.8198	492.7371	0.0140	0.0128	0.0052

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculations - Franchised Haulers
Final Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.174	0.198	0.885	1.898	1037.086	0.029	0.027	0.011
Del Mar (WM)	0.019	0.021	0.095	0.198	116.767	0.003	0.003	0.001
Encinitas (EDCO)	0.110	0.125	0.558	1.176	661.448	0.019	0.017	0.007
Escondido (EDCO)	0.197	0.225	1.014	2.092	1095.527	0.030	0.028	0.012
Oceanside (WM)	0.213	0.242	1.085	2.329	1263.176	0.035	0.032	0.013
Poway (EDCO)	0.100	0.114	0.505	1.031	605.819	0.017	0.016	0.006
San Marcos (EDCO)	0.129	0.147	0.662	1.362	731.011	0.020	0.019	0.008
Solana Beach (WM)	0.027	0.030	0.134	0.282	164.948	0.005	0.004	0.002
Vista (EDCO)	0.177	0.202	0.899	1.836	1065.507	0.030	0.028	0.011
Unincorporated	0.528	0.601	2.716	5.073	2835.065	0.081	0.074	0.030
Total	**1.673**	**1.905**	**8.553**	**17**	**9576**	**0.270**	**0.249**	**0.102**

Gregory Canyon Landfill Draft EIS
Tonnage Extrapolation

	Existing		Operational Year (Projected)		
Jurisdiction	**3-Year Average[a]**	**3-Year Average (Franchised)**	**3-Year Average**	**3-Year Average (Franchised)**	**Self-Hauled Tonnage**
Carlsbad	120,924	91,606	123,811	93,793	30,018
Del Mar	11,135	9,102	11,401	9,319	2,082
Encinitas	69,256	56,608	70,909	57,959	12,950
Escondido	138,751	113,412	142,063	116,119	25,944
Oceanside	138,536	113,235	141,843	115,938	25,905
Poway	60,935	49,807	62,390	50,996	11,394
San Marcos	88,339	72,206	90,448	73,930	16,518
Solana Beach	15,895	12,992	16,274	13,302	2,972
Vista	102,518	89,929	104,965	92,076	12,890
Unincorporated	230,397	193,534	235,897	198,154	37,743
Total	**976,686**	**802,431**	**1,000,000**	**821,585**	**178,415**
Extrapolation Factor	-	-		**102%**	

[a] *Data from R3 report "Analysis of solid waste vehicle types and disposal facility trippage in North San Diego County", 7/2/2012*

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct or Transfer?	Total One-Way Trips/day
Carlsbad(WM)	30,018	98	196	9	205	Transfer	205
Del Mar(WM)	2,082	7	14	1	14	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	Transfer	88
Escondido(EDCO)	25,944	85	169	8	177	Transfer	177
Oceanside(WM)	25,905	84	169	8	177	Transfer	177
Poway(EDCO)	11,394	37	74	4	78	Transfer	78
San Marcos(EDCO)	16,518	54	108	5	113	Transfer	113
Solana Beach(WM)	2,972	10	19	1	20	Transfer	20
Vista(EDCO)	12,890	42	84	4	88	Transfer	88
Unincorporated	37,743	123	206	10	216	See Below	216
Total	178,415	581	1,122	53	1,176		
U1	3,888	13	25	1	27	Transfer	27
U2	830	3	5	0	6	Transfer	6
U3	10,266	33	67	3	70	Transfer	70
U4	5,624	18	37	2	38	Transfer	38
U5	6,228	20	41	2	43	Transfer	43
U6	868	3	6	0	6	Transfer	6
U7	3,925	13	26	1	27	Transfer	27
U8	6,114	20	40	2	42	Transfer	42

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Transfer Station	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# City-TS Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Carlsbad(WM)	Palomar Transfer Station	5.9	47.1	1,592	60,036	2,859	488,862
	Palomar Transfer Station	15.4	47.1	113	1,959	93	34,570
Del Mar (WM)	Escondido Resource Recovery	26.9	28.8	23	255	12	7,198
	Sycamore Sanitary Landfill	**21**	0	79	1,153	0	24,223
	West Miramar Sanitary Landfill	**12.4**	0	32	796	0	9,865
Encinitas(EDCO)	Palomar Transfer Station	8.5	47.1	365	10,440	497	112,155
	Escondido Resource Recovery	18	28.8	976	15,460	736	299,480
Escondido(EDCO)	Escondido Resource Recovery	1.4	28.8	468	51,888	2,471	143,803
Oceanside(WM)	Palomar Transfer Station	10.1	47.1	656	16,310	777	201,315
	Waste Management of North County	2.5	34.2	477	35,500	1,690	146,563
Poway(EDCO)	Escondido Resource Recovery	14.1	28.8	509	10,108	481	156,380
	Ramona MRF and Transfer Station	14.8	28.2	587	11,163	532	180,206
	EDCO Station (La Mesa)	22.2	19.2 9	113 0	1,516	61 12	34,829 104
San Marcos(EDCO)	Escondido Resource Recovery	4.2	28.8	600	33,036	1,573	184,059
	Palomar Transfer Station	14.6	47.1	166	3,029	144	51,014
	EDCO Transfer Station	24.9	11.7	144	1,739	83	44,275
Solana Beach(WM)	Escondido Resource Recovery	17.5	28.8	23	374	18	7,053
	EDCO Station (La Mesa)	24.6	19.2 9	66 0	803	32 6	20,366 55
Vista(EDCO)	Palomar Transfer Station	7	47.1	56	1,858	88	17,176
	Escondido Resource Recovery	12.6	28.8	987	21,693	1,033	303,083
	Fallbrook Recycling Facility	13.4	54	116	2,228	106	35,580

North San Diego County Jurisdiction	# Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Annual City-TS VMT
Carlsbad(WM)	60,036	2,859	354,210
Del Mar(WM)	4,163	105	71,112
Encinitas (EDCO)	25,900	1,233	367,017
Escondido(EDCO)	51,888	2,471	72,643
Oceanside(WM)	51,810	2,467	253,483
Poway(EDCO)	22,787	1,074	341,397
San Marcos(EDCO)	33,036	1,573	138,752
Solana Beach(WM)	5,945	277	113,817
Vista(EDCO)	25,779	1,228	316,191

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Transfer Station	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# City-TS Direct One-Way trips/Yr	# Transfer One-Way Trips/Yr	Average Tonnage Annual VMT
Unincorporated		**See Below**		2,735	63,235	2,636	839,555
Total				10,885	344,578	15,941	3,341,768
U1	Palomar Transfer Station	10.3	47.1	312	7,671	365	95,836
U2	EDCO Transfer Station	0.0	11.7	3	1,682	80	937
U3	Escondido Resource Recovery	13.5	28.8	998	20,556	979	306,291
U4	Ramona MRF and Transfer Station	0.0	28.2	49	11,282	537	15,150
U5	Fallbrook Recycling Facility	0.0	54	104	12,468	594	32,061
U6	Universl Refuse Removal Recycling and TS	32.3	89.3	203	1,705	81	62,347
U7	Otay Landfill	41.5	--	1,065	7,870	--	326,967
U8	Sycamore Sanitary Landfill	29.6	--	1,180	12,251	--	362,232

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.027	0.039	0.915	0.130	221.482	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.03	0.04	0.91	0.13	221	0.001	0.001	0.002
Del Mar(WM)	0.005	0.008	0.184	0.026	44.465	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.01	0.01	0.18	0.03	44	0.000	0.000	0.000
Encinitas(EDCO)	0.028	0.040	0.948	0.135	229.490	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.03	0.04	0.95	0.14	229	0.001	0.001	0.002
Escondido(EDCO)	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.01	0.01	0.19	0.03	45	0.000	0.000	0.000
Oceanside(WM)	0.019	0.028	0.655	0.093	158.498	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.02	0.03	0.65	0.09	158	0.001	0.001	0.002
Poway(EDCO)	0.026	0.037	0.882	0.126	213.470	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.03	0.04	0.88	0.13	213	0.001	0.001	0.002
San Marcos(EDCO)	0.010	0.015	0.358	0.051	86.759	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.01	0.02	0.36	0.05	87	0.000	0.000	0.001
Solana Beach(WM)	0.009	0.012	0.294	0.042	71.168	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.01	0.01	0.29	0.04	71	0.000	0.000	0.001
Vista(EDCO)	0.024	0.035	0.817	0.116	197.709	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.02	0.03	0.82	0.12	198	0.001	0.001	0.002

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.015	0.017	0.071	1.657	262.850	0.014	0.003	0.007	0.008	0.026	0.167	13.6	0.000	0.000	0.000	0.02	0.02	0.10	1.82	276	0.024	0.014	0.003
Del Mar (WM)	0.001	0.001	0.002	0.058	9.260	0.000	0.000	0.000	0.000	0.001	0.006	0.5	0.000	0.000	0.000	0.00	0.00	0.00	0.06	10	0.001	0.000	0.000
Encinitas(EDCO)	0.005	0.006	0.023	0.549	87.097	0.005	0.001	0.003	0.003	0.011	0.072	5.9	0.000	0.000	0.000	0.01	0.01	0.03	0.62	93	0.008	0.005	0.001
Escondido(EDCO)	0.008	0.009	0.037	0.876	138.910	0.007	0.001	0.006	0.006	0.022	0.144	11.7	0.000	0.000	0.000	0.01	0.02	0.06	1.02	151	0.013	0.008	0.001
Oceanside(WM)	0.011	0.012	0.050	1.162	184.267	0.010	0.002	0.006	0.006	0.022	0.144	11.7	0.000	0.000	0.000	0.02	0.02	0.07	1.31	196	0.017	0.010	0.002
Poway(EDCO)	0.003	0.004	0.016	0.371	58.800	0.003	0.001	0.002	0.003	0.010	0.063	5.1	0.000	0.000	0.000	0.01	0.01	0.03	0.43	64	0.005	0.003	0.001
San Marcos(EDCO)	0.005	0.006	0.024	0.558	88.442	0.005	0.001	0.004	0.004	0.014	0.092	7.5	0.000	0.000	0.000	0.01	0.01	0.04	0.65	96	0.008	0.005	0.001
Solana Beach(WM)	0.001	0.001	0.005	0.110	17.464	0.001	0.000	0.001	0.001	0.002	0.016	1.3	0.000	0.000	0.000	0.00	0.00	0.01	0.13	19	0.002	0.001	0.000
Vista(EDCO)	0.004	0.005	0.021	0.488	77.393	0.004	0.001	0.003	0.003	0.011	0.072	5.8	0.000	0.000	0.000	0.01	0.01	0.03	0.56	83	0.007	0.004	0.001

Unincorporated Regions - Annual City-TS Haul Emissions

	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.006	0.009	0.203	0.029	49.166	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0059	0.0086	0.2031	0.0290	49.1660	0.0002	0.0002	0.0005
U2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U3	0.021	0.030	0.718	0.102	173.891	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0210	0.0304	0.7182	0.1025	173.8906	0.0007	0.0006	0.0019
U4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U6	0.004	0.006	0.142	0.020	34.452	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0042	0.0060	0.1423	0.0203	34.4517	0.0001	0.0001	0.0004
U7	0.025	0.036	0.844	0.120	204.447	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0247	0.0358	0.8444	0.1205	204.4467	0.0008	0.0007	0.0022
U8	0.027	0.040	0.936	0.133	226.497	0.001	0.002	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0274	0.0396	0.9355	0.1334	226.4973	0.0009	0.0008	0.0025

Unincorporated Regions - Annual TF-LF Haul Emissions

	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.002	0.009	0.212	33.586	0.002	0.000	0.0008	0.0010	0.0033	0.0213	1.7	0.0000	0.0000	0.0000	0.0028	0.0032	0.0123	0.2331	35.3214	0.0031	0.0018	0.0003
U2	0.000	0.000	0.000	0.012	1.829	0.000	0.000	0.0002	0.0002	0.0007	0.0047	0.4	0.0000	0.0000	0.0000	0.0003	0.0003	0.0012	0.0162	2.2097	0.0002	0.0001	0.0000
U3	0.003	0.004	0.015	0.347	55.032	0.003	0.001	0.0023	0.0026	0.0088	0.0570	4.6	0.0001	0.0001	0.0000	0.0054	0.0062	0.0236	0.4041	59.6817	0.0051	0.0030	0.0006
U4	0.002	0.002	0.008	0.186	29.574	0.002	0.000	0.0012	0.0014	0.0048	0.0313	2.6	0.0001	0.0001	0.0000	0.0029	0.0033	0.0128	0.2178	32.1260	0.0028	0.0016	0.0003
U5	0.004	0.004	0.017	0.395	62.585	0.003	0.001	0.0014	0.0016	0.0053	0.0346	2.8	0.0001	0.0001	0.0000	0.0050	0.0057	0.0222	0.4292	65.4045	0.0058	0.0034	0.0006
U6	0.001	0.001	0.004	0.089	14.150	0.001	0.000	0.0002	0.0002	0.0007	0.0047	0.4	0.0000	0.0000	0.0000	0.0010	0.0011	0.0045	0.0940	14.5357	0.0013	0.0008	0.0001
U7	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U8	0	0	0	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.05	0.06	1.01	2	498	0.025	0.015	0.005
Del Mar(WM)	0.01	0.01	0.19	0	54	0.001	0.001	0.001
Encinitas(EDCO)	0.04	0.05	0.98	1	322	0.009	0.006	0.003
Escondido(EDCO)	0.02	0.02	0.25	1	196	0.013	0.008	0.002
Oceanside(WM)	0.04	0.05	0.73	1	354	0.018	0.011	0.004
Poway(EDCO)	0.03	0.04	0.91	1	277	0.006	0.004	0.003
San Marcos(EDCO)	0.02	0.03	0.40	1	183	0.009	0.005	0.002
Solana Beach(WM)	0.01	0.01	0.30	0	90	0.002	0.001	0.001
Vista(EDCO)	0.03	0.04	0.85	1	281	0.008	0.005	0.003
Unincorporated	0.10	0.14	2.92	2	898	0.021	0.013	0.009
Total	**0.34**	**0.46**	**8.53**	**9**	**3,154**	**0.112**	**0.068**	**0.033**

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	21	T7 Public
Medium Duty Truck	1	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	24	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	41	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	33	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	21	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	23	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	33	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	23	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	39	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	15	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	39.6	Transfer	16
U2	1,887	6	12	1	13	30	Transfer	13
U3	9,058	30	59	3	62	30	Transfer	62
U4	6,756	22	44	2	46	38	Transfer	46
U5	6,982	23	45	2	48	12.5	Transfer	48
U6	3,397	11	22	1	23	16.3	Transfer	23
U7	7,284	24	47	2	50	17.2	Transfer	50

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	19.7	60,036	210,125	2,859	56,319	266,444
Del Mar (EWM)	15.4	29	4,163	64,111	198	5,749	69,860
Encinitas (EDCO)	8.5	29	25,900	220,149	1,233	35,766	255,915
Escondido (EDCO)	1.4	19.7	51,888	72,643	2,471	48,676	121,318
Oceanside (EWM)	2.5	19.7	51,810	129,525	2,467	48,603	178,127
Poway (EDCO)	16.5	19.7	22,787	375,990	1,085	21,377	397,366
San Marcos (EDCO)	4.2	19.7	33,036	138,752	1,573	30,991	169,743
Solana Beach (EWM)	14.6	29	5,945	86,791	283	8,209	95,000
Vista (EDCO)	14.6	19.7	25,779	376,374	1,228	24,183	400,557
Unincorporated	See Below		75,486	709,001	3,595	86,887	795,889
Total			356,829		16,992		2,750,220
U1	21.5	19.7	4,756	102,246	226	4,461	106,707
U2	12.5	14	3,774	47,179	180	2,516	49,695
U3	11.5	19.7	18,117	208,341	863	16,995	225,336
U4	5	37.2	13,512	67,560	643	23,935	91,495
U5	3	37.2	13,965	41,895	665	24,738	66,632
U6	12	14	6,794	81,525	324	4,529	86,054
U7	11	14	14,569	160,257	694	9,713	169,969

Annual City-TS Haul Emissions (<12.5 mi from Landfill)

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001
Del Mar (WM)	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000
Encinitas (EDCO)	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001
Escondido (EDCO)	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000
Oceanside (WM)	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001
Poway (EDCO)	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003
San Marcos (EDCO)	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001
Solana Beach (WM)	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001
Vista (EDCO)	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003

Annual Transfer Station to GCLF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.006	0.007	0.030	0.693	109.939	0.010	0.006	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.013	0.015	0.055	0.860	123.518	0.010	0.006	0.001
Del Mar (WM)	0.001	0.001	0.003	0.071	11.222	0.001	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.005	0.082	12.164	0.001	0.001	0.000
Encinitas (EDCO)	0.004	0.005	0.019	0.440	69.819	0.006	0.004	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.007	0.008	0.030	0.512	75.677	0.007	0.004	0.001
Escondido (EDCO)	0.005	0.006	0.026	0.599	95.019	0.009	0.005	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.011	0.013	0.048	0.743	106.754	0.009	0.005	0.001
Oceanside (WM)	0.005	0.006	0.026	0.598	94.876	0.009	0.005	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.011	0.013	0.048	0.742	106.594	0.009	0.005	0.001
Poway (EDCO)	0.002	0.003	0.011	0.263	41.729	0.004	0.002	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.005	0.006	0.021	0.326	46.883	0.004	0.002	0.000
San Marcos (EDCO)	0.003	0.004	0.016	0.381	60.497	0.006	0.003	0.001	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.007	0.008	0.030	0.473	67.969	0.006	0.003	0.001
Solana Beach (WM)	0.001	0.001	0.004	0.101	16.025	0.001	0.001	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.002	0.007	0.118	17.370	0.001	0.001	0.000
Vista (EDCO)	0.003	0.003	0.013	0.298	47.207	0.004	0.002	0.000	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.006	0.006	0.024	0.369	53.038	0.004	0.003	0.001

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001
U2	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000
U3	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001
U4	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000
U5	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000
U6	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001
U7	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.001	0.001	0.002	0.055	8.709	0.001	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0010	0.0012	0.0044	0.0681	9.7842	0.0008	0.0005	0.0001
U2	0.000	0.000	0.001	0.031	4.912	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0007	0.0008	0.0029	0.0414	5.7655	0.0005	0.0003	0.0001
U3	0.002	0.002	0.009	0.209	33.176	0.003	0.002	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0039	0.0044	0.0167	0.2595	37.2733	0.0031	0.0018	0.0004
U4	0.003	0.003	0.013	0.295	46.724	0.004	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0042	0.0047	0.0183	0.3321	49.7800	0.0043	0.0025	0.0005
U5	0.003	0.003	0.013	0.305	48.290	0.004	0.003	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0043	0.0049	0.0190	0.3432	51.4486	0.0045	0.0026	0.0005
U6	0.001	0.001	0.002	0.056	8.841	0.001	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0013	0.0014	0.0053	0.0746	10.3778	0.0008	0.0005	0.0001
U7	0.001	0.001	0.005	0.120	18.960	0.002	0.001	0.000	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0027	0.0031	0.0113	0.1600	22.2547	0.0018	0.0011	0.0002

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.029	0.038	0.598	0.937	254.905	0.011	0.007	0.003
Del Mar (WM)	0.006	0.008	0.170	0.106	52.252	0.001	0.001	0.001
Encinitas (EDCO)	0.023	0.032	0.598	0.593	213.332	0.007	0.004	0.002
Escondido (EDCO)	0.017	0.021	0.235	0.770	152.176	0.009	0.005	0.002
Oceanside (WM)	0.021	0.027	0.382	0.790	187.584	0.009	0.006	0.002
Poway (EDCO)	0.033	0.047	0.992	0.465	281.983	0.005	0.003	0.003
San Marcos (EDCO)	0.018	0.023	0.389	0.524	154.728	0.006	0.004	0.002
Solana Beach (WM)	0.008	0.011	0.231	0.150	71.638	0.002	0.001	0.001
Vista (EDCO)	0.034	0.047	0.996	0.508	288.378	0.005	0.003	0.003
Unincorporated	0.057	0.078	1.484	1.321	507.550	0.015	0.009	0.005
Total	**0.246**	**0.332**	**6.076**	**6**	**2165**	**0.071**	**0.044**	**0.022**

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self Hauled
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	30	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	48	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	39	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	25	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	26	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	38	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	28	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	45	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	21	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	44.8	Transfer	16
U2	1,887	6	12	1	13	18.2	Transfer	13
U3	9,058	30	59	3	62	35.3	Transfer	62
U4	6,756	22	44	2	46	43	Transfer	46
U5	6,982	23	45	2	48	6.7	Transfer	48
U6	3,397	11	22	1	23	25.4	Transfer	23
U7	7,284	24	47	2	50	25.7	Transfer	50

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Self Hauled
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	24.9	60,036	210,125	2,859	71,185	281,310
Del Mar (WM)	15.4	35.9	4,163	64,111	198	7,117	71,228
Encinitas (EDCO)	8.5	35.9	25,900	220,149	1,233	44,276	264,425
Escondido (EDCO)	1.4	25.1	51,888	72,643	2,471	62,018	134,661
Oceanside (WM)	2.5	24.9	51,810	129,525	2,467	61,432	190,956
Poway (EDCO)	16.5	25.1	22,787	375,990	1,085	27,236	403,226
San Marcos (EDCO)	4.2	25.1	33,036	138,752	1,573	39,486	178,238
Solana Beach (WM)	14.6	35.9	5,945	86,791	283	10,162	96,953
Vista (EDCO)	14.6	25.1	25,779	376,374	1,228	30,812	407,186
Unincorporated	See Below		75,486	709,001	3,595	92,618	801,619
Total			356,829		16,992		2,829,803
U1	21.5	24.9	4,756	102,246	226	5,639	107,884
U2	12.5	7.9	3,774	47,179	180	1,420	48,599
U3	11.5	25.1	18,117	208,341	863	21,654	229,995
U4	5	42.7	13,512	67,560	643	27,474	95,034
U5	3	42.7	13,965	41,895	665	28,395	70,290
U6	12	7.9	6,794	81,525	324	2,556	84,080
U7	11	7.9	14,569	160,257	694	5,481	165,737

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Self Hauled
Initial Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)					Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.016	0.023	0.543	0.077	131.387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001
Del Mar (WM)	0.005	0.007	0.166	0.024	40.088	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000
Encinitas (EDCO)	0.017	0.024	0.569	0.081	137.655	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001
Escondido (EDCO)	0.005	0.008	0.188	0.027	45.422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000
Oceanside (WM)	0.010	0.014	0.335	0.048	80.990	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001
Poway (EDCO)	0.028	0.041	0.971	0.139	235.100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003
San Marcos (EDCO)	0.010	0.015	0.358	0.051	86.759	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001
Solana Beach (WM)	0.007	0.009	0.224	0.032	54.269	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001
Vista (EDCO)	0.028	0.041	0.972	0.139	235.340	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003

Annual Transfer Station to Aspen Road Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)					Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.008	0.009	0.037	0.876	138.959	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.015	0.017	0.063	1.043	152.537	0.013	0.008	0.001
Del Mar (WM)	0.001	0.001	0.004	0.088	13.893	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.006	0.099	14.834	0.001	0.001	0.000
Encinitas (EDCO)	0.005	0.006	0.023	0.545	86.431	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.008	0.009	0.034	0.617	92.289	0.008	0.005	0.001
Escondido (EDCO)	0.007	0.008	0.033	0.763	121.064	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.013	0.014	0.055	0.907	132.800	0.011	0.007	0.001
Oceanside (WM)	0.007	0.008	0.032	0.756	119.920	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.013	0.014	0.054	0.900	131.638	0.011	0.007	0.001
Poway (EDCO)	0.003	0.003	0.014	0.335	53.167	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.006	0.006	0.024	0.398	58.321	0.005	0.003	0.001
San Marcos (EDCO)	0.004	0.005	0.021	0.486	77.080	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.008	0.009	0.035	0.578	84.552	0.007	0.004	0.001
Solana Beach (WM)	0.001	0.001	0.005	0.125	19.838	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.002	0.008	0.142	21.182	0.002	0.001	0.000
Vista (EDCO)	0.003	0.004	0.016	0.379	60.148	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.006	0.007	0.027	0.451	65.978	0.006	0.003	0.001

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Self Hauled
Initial Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)					Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.008	0.011	0.264	0.038	63.932	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001
U2	0.004	0.005	0.122	0.017	29.500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000
U3	0.016	0.023	0.538	0.077	130.272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001
U4	0.005	0.007	0.174	0.025	42.244	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000
U5	0.003	0.005	0.108	0.015	26.196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000
U6	0.006	0.009	0.211	0.030	50.976	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001
U7	0.012	0.018	0.414	0.059	100.206	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)					Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.001	0.001	0.003	0.069	11.007	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0012	0.0013	0.0050	0.0826	12.0830	0.0010	0.0006	0.0001
U2	0.000	0.000	0.001	0.017	2.772	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0006	0.0007	0.0024	0.0279	3.6253	0.0003	0.0002	0.0000
U3	0.002	0.003	0.011	0.267	42.270	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0044	0.0050	0.0191	0.3168	46.3671	0.0040	0.0023	0.0004
U4	0.003	0.004	0.014	0.338	53.632	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0046	0.0052	0.0202	0.3757	56.6881	0.0050	0.0029	0.0005
U5	0.003	0.004	0.015	0.350	55.430	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0047	0.0054	0.0209	0.3883	58.5883	0.0051	0.0030	0.0006
U6	0.000	0.000	0.001	0.031	4.989	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0010	0.0012	0.0042	0.0503	6.5256	0.0005	0.0003	0.0001
U7	0.001	0.001	0.003	0.067	10.699	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0022	0.0025	0.0091	0.1079	13.9937	0.0011	0.0006	0.0001

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculations - Self Hauled
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.030	0.040	0.606	1.120	283.925	0.014	0.008	0.003
Del Mar (WM)	0.006	0.008	0.171	0.123	54.922	0.001	0.001	0.001
Encinitas (EDCO)	0.024	0.033	0.603	0.698	229.944	0.009	0.005	0.002
Escondido (EDCO)	0.018	0.022	0.242	0.934	178.222	0.012	0.007	0.002
Oceanside (WM)	0.022	0.029	0.389	0.948	212.627	0.012	0.007	0.002
Poway (EDCO)	0.034	0.047	0.995	0.537	293.421	0.006	0.004	0.003
San Marcos (EDCO)	0.019	0.024	0.393	0.629	171.311	0.008	0.005	0.002
Solana Beach (WM)	0.008	0.012	0.232	0.174	75.451	0.002	0.001	0.001
Vista (EDCO)	0.035	0.048	0.999	0.589	301.318	0.007	0.004	0.003
Unincorporated	0.058	0.079	1.489	1.444	526.998	0.017	0.011	0.005
Total	**0.255**	**0.342**	**6.120**	**7**	**2328**	**0.086**	**0.052**	**0.024**

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to Gopher Canyon (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	13	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	29	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	22	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	17	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	15	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	29	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	10	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	28	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	5	Direct	84
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	33	Transfer	16
U2	1,887	6	12	1	13	25.5	Transfer	13
U3	9,058	30	59	3	62	20.3	Transfer	62
U4	6,756	22	44	2	46	34	Transfer	46
U5	6,982	23	45	2	48	14	Transfer	48
U6	3,397	11	22	1	23	19.4	Transfer	23
U7	7,284	24	47	2	50	6.1	Direct	47

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	11.2	60,036	210,125	2,859	32,019	242,144
Del Mar (EWM)	15.4	12.1	4,163	64,111	198	2,399	66,510
Encinitas (EDCO)	8.5	12.1	25,900	220,149	1,233	14,923	235,072
Escondido (EDCO)	1.4	16.6	51,888	72,643	2,471	41,016	113,659
Oceanside (EWM)	2.5	11.2	51,810	129,525	2,467	27,632	157,157
Poway (EDCO)	16.5	16.6	22,787	375,990	1,085	18,013	394,003
San Marcos (EDCO)	4.2	16.6	33,036	138,752	1,573	26,114	164,866
Solana Beach (EWM)	14.6	12.1	5,945	86,791	283	3,425	90,216
Vista (EDCO)	14.6	16.6	25,779	376,374	0	0	121,161
Unincorporated	See Below		75,486	709,001	2,901	68,157	705,771
Total			356,829		15,071		2,290,559
U1	21.5	11.2	4,756	102,246	226	2,536	104,782
U2	12.5	13.8	3,774	47,179	180	2,480	49,659
U3	11.5	16.6	18,117	208,341	863	14,321	222,662
U4	5	33.9	13,512	67,560	643	21,812	89,372
U5	3	33.9	13,965	41,895	665	22,543	64,438
U6	12	13.8	6,794	81,525	324	4,464	85,989
U7	11	13.8	14,569	160,257	0	0	88,870

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001
Del Mar(WM)	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000
Encinitas(EDCO)	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001
Escondido(EDCO)	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000
Oceanside(WM)	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001
Poway(EDCO)	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003
San Marcos(EDCO)	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001
Solana Beach(WM)	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001
Vista(EDCO)	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003

Annual Transfer Station to Gopher Canyon Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.004	0.004	0.017	0.394	62.504	0.006	0.003	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.010	0.012	0.043	0.561	76.082	0.006	0.004	0.001
Del Mar(WM)	0.000	0.000	0.001	0.030	4.682	0.000	0.000	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.003	0.041	5.624	0.000	0.000	0.000
Encinitas(EDCO)	0.002	0.002	0.008	0.184	29.131	0.003	0.002	0.000	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.005	0.005	0.019	0.256	34.989	0.003	0.002	0.000
Escondido(EDCO)	0.005	0.005	0.022	0.505	80.066	0.007	0.004	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.010	0.012	0.044	0.649	91.802	0.008	0.005	0.001
Oceanside(WM)	0.003	0.004	0.014	0.340	53.940	0.005	0.003	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.009	0.010	0.037	0.484	65.658	0.005	0.003	0.001
Poway(EDCO)	0.002	0.002	0.009	0.222	35.162	0.003	0.002	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.005	0.005	0.019	0.285	40.316	0.003	0.002	0.000
San Marcos(EDCO)	0.003	0.003	0.014	0.321	50.977	0.005	0.003	0.000	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.007	0.007	0.028	0.413	58.449	0.005	0.003	0.001
Solana Beach(WM)	0.000	0.000	0.002	0.042	6.686	0.001	0.000	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.001	0.001	0.004	0.059	8.031	0.001	0.000	0.000
Vista(EDCO)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001
U2	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000
U3	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001
U4	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000
U5	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000
U6	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001
U7	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.000	0.000	0.001	0.031	4.951	0.000	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0008	0.0009	0.0034	0.0444	6.0267	0.0005	0.0003	0.0001
U2	0.000	0.000	0.001	0.031	4.842	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0007	0.0008	0.0029	0.0410	5.6953	0.0005	0.0003	0.0001
U3	0.002	0.002	0.008	0.176	27.955	0.003	0.001	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0036	0.0041	0.0153	0.2265	32.0527	0.0027	0.0016	0.0003
U4	0.002	0.003	0.011	0.268	42.579	0.004	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0039	0.0045	0.0172	0.3060	45.6351	0.0040	0.0023	0.0004
U5	0.003	0.003	0.012	0.277	44.006	0.004	0.002	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0041	0.0046	0.0178	0.3162	47.1648	0.0041	0.0024	0.0004
U6	0.001	0.001	0.002	0.055	8.715	0.001	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0012	0.0014	0.0053	0.0738	10.2515	0.0008	0.0005	0.0001
U7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.026	0.035	0.585	0.638	207.470	0.007	0.004	0.002
Del Mar (WM)	0.006	0.008	0.169	0.065	45.712	0.001	0.000	0.000
Encinitas (EDCO)	0.021	0.029	0.587	0.337	172.644	0.003	0.002	0.002
Escondido (EDCO)	0.016	0.020	0.231	0.676	137.224	0.008	0.005	0.001
Oceanside (WM)	0.019	0.024	0.371	0.532	146.647	0.006	0.003	0.002
Poway (EDCO)	0.033	0.046	0.990	0.423	275.416	0.004	0.003	0.003
San Marcos (EDCO)	0.017	0.023	0.386	0.464	145.208	0.005	0.003	0.001
Solana Beach (WM)	0.008	0.011	0.228	0.091	62.300	0.001	0.001	0.001
Vista (EDCO)	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003
Unincorporated	0.056	0.076	1.479	1.210	489.947	0.014	0.009	0.005
Total	**0.229**	**0.313**	**6.000**	**5**	**1918**	**0.049**	**0.031**	**0.020**

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	Max Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to Merriam Mountain (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	0	196	9	205	18	Transfer	205
Del Mar (WM)	2,082	7	0	14	1	14	34	Transfer	14
Encinitas (EDCO)	12,950	42	0	84	4	88	27	Transfer	88
Escondido (EDCO)	25,944	85	0	169	8	177	12	Transfer	177
Oceanside (WM)	25,905	84	0	169	8	177	20	Transfer	177
Poway (EDCO)	11,394	37	0	74	4	78	25	Transfer	78
San Marcos (EDCO)	16,518	54	0	108	5	113	7	Transfer	113
Solana Beach (WM)	2,972	10	0	19	1	20	33	Transfer	20
Vista (EDCO)	12,890	42	0	84	4	88	9	Direct	84
Unincorporated	37,743	123	0	246	12	258	30	See Below	258
Total	178,415	581	0	1,162	55	1,218	See Below		
U1	2,378	8	0	15	1	16	38.5	Transfer	16
U2	1,887	6	0	12	1	13	35.5	Transfer	13
U3	9,058	30	0	59	3	62	22.2	Transfer	62
U4	6,756	22	0	44	2	46	30	Transfer	46
U5	6,982	23	0	45	2	48	23.9	Transfer	48
U6	3,397	11	0	22	1	23	20.7	Transfer	23
U7	7,284	24	0	47	2	50	7.9	Direct	47

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	18.7	60,036	210,125	2,859	53,460	263,585
Del Mar (WM)	15.4	13.5	4,163	64,111	198	2,676	66,787
Encinitas (EDCO)	8.5	13.5	25,900	220,149	1,233	16,650	236,798
Escondido (EDCO)	1.4	13.1	51,888	72,643	2,471	32,368	105,011
Oceanside (WM)	2.5	18.7	51,810	129,525	2,467	46,135	175,660
Poway (EDCO)	16.5	13.1	22,787	375,990	1,085	14,215	390,205
San Marcos (EDCO)	4.2	13.1	33,036	138,752	1,573	20,608	159,360
Solana Beach (WM)	14.6	13.5	5,945	86,791	283	3,822	90,613
Vista (EDCO)	14.6	13.1	25,779	376,374	0	0	229,433
Unincorporated	See Below		75,486	709,001	2,901	59,549	723,387
Total			356,829		15,071		2,440,840
U1	21.5	18.7	4,756	102,246	226	4,235	106,480
U2	12.5	7.9	3,774	47,179	180	1,420	48,599
U3	11.5	13.1	18,117	208,341	863	11,301	219,642
U4	5	30.6	13,512	67,560	643	19,689	87,249
U5	3	30.6	13,965	41,895	665	20,349	62,243
U6	12	7.9	6,794	81,525	324	2,556	84,080
U7	11	7.9	14,569	160,257	0	0	115,093

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Initial Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.016	0.023	0.543	0.077	131.387	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001
Del Mar (EWM)	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000
Encinitas (EDCO)	0.017	0.024	0.569	0.081	137.655	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001
Escondido (EDCO)	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000
Oceanside (EWM)	0.010	0.014	0.335	0.048	80.990	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001
Poway (EDCO)	0.028	0.041	0.971	0.139	235.100	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003
San Marcos (EDCO)	0.010	0.015	0.358	0.051	86.759	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001
Solana Beach (EWM)	0.007	0.009	0.224	0.032	54.269	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001
Vista (EDCO)	0.028	0.041	0.972	0.139	235.340	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003

Annual Transfer Station to Merriam Mountain Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.006	0.007	0.028	0.658	104.359	0.005	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.013	0.014	0.054	0.825	117.937	0.010	0.006	0.001
Del Mar (EWM)	0.000	0.000	0.001	0.033	5.224	0.000	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.003	0.044	6.166	0.001	0.000	0.000
Encinitas (EDCO)	0.002	0.002	0.009	0.205	32.502	0.002	0.000	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.005	0.005	0.020	0.277	38.360	0.003	0.002	0.000
Escondido (EDCO)	0.004	0.004	0.017	0.398	63.185	0.003	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.009	0.011	0.039	0.542	74.921	0.006	0.004	0.001
Oceanside (EWM)	0.005	0.006	0.024	0.568	90.060	0.005	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.011	0.012	0.046	0.712	101.778	0.009	0.005	0.001
Poway (EDCO)	0.002	0.002	0.007	0.175	27.749	0.001	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.004	0.005	0.017	0.238	32.902	0.003	0.002	0.000
San Marcos (EDCO)	0.002	0.003	0.011	0.254	40.229	0.002	0.000	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.006	0.007	0.025	0.345	47.701	0.004	0.002	0.000
Solana Beach (EWM)	0.000	0.000	0.002	0.047	7.460	0.000	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.001	0.001	0.005	0.064	8.804	0.001	0.000	0.000
Vista (EDCO)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Initial Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.008	0.011	0.264	0.038	63.932	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001
U2	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000
U3	0.016	0.023	0.538	0.077	130.272	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001
U4	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000
U5	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000
U6	0.006	0.009	0.211	0.030	50.976	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001
U7	0.012	0.018	0.414	0.059	100.206	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.000	0.001	0.002	0.052	8.267	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0010	0.0011	0.0043	0.0653	9.3422	0.0008	0.0005	0.0001
U2	0.000	0.000	0.001	0.017	2.772	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0006	0.0007	0.0024	0.0279	3.6253	0.0003	0.0002	0.0000
U3	0.001	0.001	0.006	0.139	22.061	0.001	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0033	0.0037	0.0137	0.1894	26.1585	0.0021	0.0013	0.0002
U4	0.002	0.003	0.010	0.242	38.434	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0037	0.0042	0.0161	0.2798	41.4903	0.0036	0.0021	0.0004
U5	0.002	0.003	0.011	0.250	39.723	0.002	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0038	0.0043	0.0167	0.2892	42.8810	0.0037	0.0022	0.0004
U6	0.000	0.000	0.001	0.031	4.989	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0010	0.0012	0.0042	0.0503	6.5256	0.0005	0.0003	0.0001
U7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.028	0.037	0.596	0.902	249.325	0.010	0.006	0.003
Del Mar (WM)	0.006	0.008	0.169	0.068	46.253	0.001	0.000	0.000
Encinitas (EDCO)	0.021	0.029	0.588	0.358	176.015	0.004	0.002	0.002
Escondido (EDCO)	0.015	0.019	0.227	0.569	120.343	0.006	0.004	0.001
Oceanside (WM)	0.021	0.027	0.381	0.759	182.768	0.009	0.005	0.002
Poway (EDCO)	0.032	0.046	0.988	0.377	268.002	0.004	0.002	0.003
San Marcos (EDCO)	0.016	0.022	0.383	0.396	134.460	0.004	0.003	0.001
Solana Beach (WM)	0.008	0.011	0.229	0.096	63.073	0.001	0.001	0.001
Vista (EDCO)	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003
Unincorporated	0.055	0.075	1.475	1.104	473.143	0.012	0.008	0.005
Total	**0.231**	**0.315**	**6.008**	**5**	**1949**	**0.052**	**0.032**	**0.020**

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Initial Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	56	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	42	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	48	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	52	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	59	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	43	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	56	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	43	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	62	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	78.6	Transfer	16
U2	1,887	6	12	1	13	87.1	Transfer	13
U3	9,058	30	59	3	62	48	Transfer	62
U4	6,756	22	44	2	46	50	Transfer	46
U5	6,982	23	45	2	48	75.6	Transfer	48
U6	3,397	11	22	1	23	62.3	Transfer	23
U7	7,284	24	47	2	50	60.9	Transfer	50

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Initial Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	59.7	60,036	210,125	2,859	170,673	380,798
Del Mar (WM)	15.4	56.9	4,163	64,111	198	11,280	75,391
Encinitas (EDCO)	8.5	56.9	25,900	220,149	1,233	70,176	290,325
Escondido (EDCO)	1.4	51.8	51,888	72,643	2,471	127,990	200,632
Oceanside (WM)	2.5	59.7	51,810	129,525	2,467	147,288	276,813
Poway (EDCO)	16.5	51.8	22,787	375,990	1,085	56,209	432,198
San Marcos (EDCO)	4.2	51.8	33,036	138,752	1,573	81,489	220,241
Solana Beach (WM)	14.6	56.9	5,945	86,791	283	16,107	102,898
Vista (EDCO)	14.6	51.8	25,779	376,374	1,228	63,588	439,962
Unincorporated	See Below		75,486	709,001	3,595	217,770	926,771
Total			356,829		16,992		3,346,030
U1	21.5	59.7	4,756	102,246	226	13,520	115,765
U2	12.5	76.9	3,774	47,179	180	13,821	61,000
U3	11.5	51.8	18,117	208,341	863	44,688	253,029
U4	5	51.6	13,512	67,560	643	33,201	100,761
U5	3	51.6	13,965	41,895	665	34,314	76,208
U6	12	76.9	6,794	81,525	324	24,878	106,403
U7	11	76.9	14,569	160,257	694	53,349	213,606

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Initial Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.016	0.023	0.543	0.077	131.387	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.543	0.077	131.387	0.001	0.000	0.001
Del Mar (EWM)	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.166	0.024	40.088	0.000	0.000	0.000
Encinitas (EDCO)	0.017	0.024	0.569	0.081	137.655	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.017	0.024	0.569	0.081	137.655	0.001	0.000	0.001
Escondido (EDCO)	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.188	0.027	45.422	0.000	0.000	0.000
Oceanside (EWM)	0.010	0.014	0.335	0.048	80.990	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.014	0.335	0.048	80.990	0.000	0.000	0.001
Poway (EDCO)	0.028	0.041	0.971	0.139	235.100	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.971	0.139	235.100	0.001	0.001	0.003
San Marcos (EDCO)	0.010	0.015	0.358	0.051	86.759	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.010	0.015	0.358	0.051	86.759	0.000	0.000	0.001
Solana Beach (EWM)	0.007	0.009	0.224	0.032	54.269	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.009	0.224	0.032	54.269	0.000	0.000	0.001
Vista (EDCO)	0.028	0.041	0.972	0.139	235.340	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.028	0.041	0.972	0.139	235.340	0.001	0.001	0.003

Annual Transfer Station to East Otay Mesa Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.019	0.022	0.090	2.101	333.167	0.017	0.003	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.026	0.029	0.115	2.267	346.745	0.031	0.018	0.003
Del Mar (EWM)	0.001	0.001	0.006	0.139	22.019	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.002	0.002	0.008	0.150	22.961	0.002	0.001	0.000
Encinitas (EDCO)	0.008	0.009	0.037	0.864	136.989	0.007	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.011	0.012	0.048	0.936	142.847	0.013	0.007	0.001
Escondido (EDCO)	0.014	0.016	0.067	1.575	249.846	0.013	0.002	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.020	0.023	0.089	1.719	261.582	0.023	0.013	0.002
Oceanside (EWM)	0.017	0.019	0.077	1.813	287.518	0.015	0.003	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.022	0.025	0.099	1.957	299.236	0.026	0.015	0.003
Poway (EDCO)	0.006	0.007	0.029	0.692	109.724	0.006	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.009	0.010	0.039	0.755	114.877	0.010	0.006	0.001
San Marcos (EDCO)	0.009	0.010	0.043	1.003	159.074	0.008	0.002	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.013	0.015	0.057	1.095	166.545	0.015	0.009	0.002
Solana Beach (EWM)	0.002	0.002	0.008	0.198	31.442	0.002	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.003	0.011	0.215	32.787	0.003	0.002	0.000
Vista (EDCO)	0.007	0.008	0.033	0.783	124.129	0.007	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.010	0.011	0.044	0.854	129.960	0.011	0.007	0.001

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Initial Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.008	0.011	0.264	0.038	63.932	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.008	0.011	0.264	0.038	63.932	0.000	0.000	0.001
U2	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.005	0.122	0.017	29.500	0.000	0.000	0.000
U3	0.016	0.023	0.538	0.077	130.272	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.016	0.023	0.538	0.077	130.272	0.001	0.000	0.001
U4	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.007	0.174	0.025	42.244	0.000	0.000	0.000
U5	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.108	0.015	26.196	0.000	0.000	0.000
U6	0.006	0.009	0.211	0.030	50.976	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.009	0.211	0.030	50.976	0.000	0.000	0.001
U7	0.012	0.018	0.414	0.059	100.206	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.012	0.018	0.414	0.059	100.206	0.000	0.000	0.001
																0.041	**0.060**	**1.417**	**0.202**	**343.121**	**0.001**	**0.001**	**0.004**

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)							Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.002	0.007	0.166	26.391	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0020	0.0023	0.0091	0.1796	27.4668	0.0024	0.0014	0.0003
U2	0.002	0.002	0.007	0.170	26.980	0.001	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0020	0.0022	0.0089	0.1806	27.8335	0.0025	0.0014	0.0003
U3	0.005	0.006	0.023	0.550	87.234	0.005	0.001	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0070	0.0080	0.0312	0.6003	91.3313	0.0080	0.0047	0.0009
U4	0.004	0.004	0.017	0.409	64.811	0.003	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0052	0.0059	0.0232	0.4462	67.8667	0.0060	0.0035	0.0006
U5	0.004	0.004	0.018	0.422	66.983	0.004	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0054	0.0061	0.0240	0.4611	70.1416	0.0062	0.0036	0.0007
U6	0.003	0.003	0.013	0.306	48.564	0.003	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0035	0.0040	0.0160	0.3251	50.1003	0.0045	0.0026	0.0005
U7	0.006	0.007	0.028	0.657	104.142	0.005	0.001	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0076	0.0086	0.0342	0.6971	107.4374	0.0096	0.0056	0.0010

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Initial Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (PWM)	0.042	0.052	0.658	2.345	478.133	0.031	0.018	0.005
Del Mar (PWM)	0.007	0.009	0.173	0.174	63.048	0.002	0.001	0.001
Encinitas (EDCO)	0.027	0.036	0.616	1.017	280.502	0.013	0.008	0.003
Escondido (EDCO)	0.026	0.031	0.277	1.746	307.004	0.023	0.014	0.003
Oceanside (PWM)	0.032	0.039	0.434	2.004	380.226	0.027	0.016	0.004
Poway (EDCO)	0.037	0.051	1.010	0.894	349.977	0.011	0.007	0.004
San Marcos (EDCO)	0.023	0.030	0.415	1.146	253.305	0.015	0.009	0.003
Solana Beach (PWM)	0.009	0.012	0.235	0.247	87.056	0.003	0.002	0.001
Vista (EDCO)	0.038	0.053	1.016	0.993	365.300	0.012	0.008	0.004
Unincorporated	0.067	0.089	1.530	2.395	677.861	0.031	0.018	0.007
Total	**0.308**	**0.402**	**6.365**	**13**	**3242**	**0.169**	**0.100**	**0.033**

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self Hauled
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	64	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	82	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	73	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	60	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	61	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	72	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	62	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	78	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	55	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	56.5	Transfer	16
U2	1,887	6	12	1	13	57.6	Transfer	13
U3	9,058	30	59	3	62	69.6	Transfer	62
U4	6,756	22	44	2	46	77	Transfer	46
U5	6,982	23	45	2	48	43.6	Transfer	48
U6	3,397	11	22	1	23	54.9	Transfer	23
U7	7,284	24	47	2	50	60.5	Transfer	50

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self Hauled
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	Avg Tonnage VMT/day	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	59.3	1,237	60,036	210,125	2,859	169,529	379,654
Del Mar (EWM)	15.4	68.4	253	4,163	64,111	198	13,560	77,671
Encinitas (EDCO)	8.5	68.4	992	25,900	220,149	1,233	84,359	304,508
Escondido (EDCO)	1.4	59.6	716	51,888	72,643	2,471	147,262	219,905
Oceanside (EWM)	2.5	59.3	898	51,810	129,525	2,467	146,301	275,826
Poway (EDCO)	16.5	59.6	1,435	22,787	375,990	1,085	64,672	440,662
San Marcos (EDCO)	4.2	59.6	757	33,036	138,752	1,573	93,760	232,512
Solana Beach (EWM)	14.6	68.4	346	5,945	86,791	283	19,362	106,153
Vista (EDCO)	14.6	59.6	1,464	25,779	376,374	1,228	73,163	449,537
Unincorporated	See Below		3,024	75,486	709,001	3,595	219,481	928,482
Total			11,123	356,829		16,992		3,414,911
U1	21.5	59.3	377	4,756	102,246	226	13,429	115,675
U2	12.5	44.8	180	3,774	47,179	180	8,052	55,231
U3	11.5	59.6	846	18,117	208,341	863	51,417	259,758
U4	5	77.2	382	13,512	67,560	643	49,673	117,232
U5	3	77.2	304	13,965	41,895	665	51,338	93,232
U6	12	44.8	313	6,794	81,525	324	14,493	96,018
U7	11	44.8	623	14,569	160,257	694	31,080	191,337

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001
Del Mar (WM)	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000
Encinitas (EDCO)	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002
Escondido (EDCO)	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000
Oceanside (WM)	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001
Poway (EDCO)	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003
San Marcos (EDCO)	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001
Solana Beach (WM)	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001
Vista (EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.019	0.022	0.089	2.087	330.935	0.030	0.017	0.003	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.026	0.029	0.115	2.253	344.513	0.030	0.018	0.003
Del Mar (WM)	0.002	0.002	0.007	0.167	26.470	0.002	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.002	0.002	0.009	0.178	27.411	0.002	0.001	0.000
Encinitas (EDCO)	0.009	0.011	0.044	1.038	164.676	0.015	0.009	0.002	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.012	0.014	0.055	1.110	170.534	0.015	0.009	0.002
Escondido (EDCO)	0.017	0.019	0.077	1.813	287.468	0.026	0.015	0.003	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.022	0.025	0.099	1.957	299.203	0.026	0.015	0.003
Oceanside (WM)	0.016	0.019	0.077	1.801	285.592	0.026	0.015	0.003	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.022	0.025	0.099	1.945	297.310	0.026	0.015	0.003
Poway (EDCO)	0.007	0.008	0.034	0.796	126.246	0.011	0.007	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.010	0.011	0.044	0.859	131.400	0.012	0.007	0.001
San Marcos (EDCO)	0.011	0.012	0.049	1.154	183.027	0.017	0.010	0.002	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.014	0.016	0.063	1.246	190.499	0.017	0.010	0.002
Solana Beach (WM)	0.002	0.002	0.010	0.238	37.797	0.003	0.002	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.003	0.003	0.013	0.255	39.141	0.003	0.002	0.000
Vista (EDCO)	0.008	0.009	0.038	0.901	142.821	0.013	0.008	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.011	0.013	0.049	0.972	148.651	0.013	0.008	0.001

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self Hauled
Interim Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001
U2	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000
U3	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001
U4	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000
U5	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000
U6	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001
U7	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.002	0.007	0.165	26.214	0.002	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0020	0.0023	0.0091	0.1785	27.2899	0.0024	0.0014	0.0003
U2	0.001	0.001	0.004	0.099	15.718	0.001	0.001	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0013	0.0015	0.0058	0.1096	16.5714	0.0015	0.0008	0.0002
U3	0.006	0.007	0.027	0.633	100.369	0.009	0.005	0.001	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0078	0.0088	0.0347	0.6832	104.4669	0.0092	0.0054	0.0010
U4	0.006	0.006	0.026	0.611	96.965	0.009	0.005	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0071	0.0080	0.0318	0.6489	100.0208	0.0089	0.0052	0.0010
U5	0.006	0.007	0.027	0.632	100.215	0.009	0.005	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0073	0.0083	0.0329	0.6707	103.3735	0.0092	0.0053	0.0010
U6	0.002	0.002	0.008	0.178	28.292	0.003	0.001	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0024	0.0027	0.0105	0.1973	29.8286	0.0026	0.0015	0.0003
U7	0.003	0.004	0.016	0.383	60.671	0.006	0.003	0.001	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0051	0.0058	0.0225	0.4230	63.9658	0.0056	0.0033	0.0006

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.032	0.040	0.393	2.290	451.436	0.031	0.018	0.005
Del Mar (WM)	0.004	0.005	0.094	0.190	60.034	0.003	0.002	0.001
Encinitas (EDCO)	0.019	0.025	0.347	1.149	282.557	0.016	0.009	0.003
Escondido (EDCO)	0.024	0.029	0.196	1.969	336.168	0.027	0.016	0.003
Oceanside (WM)	0.026	0.032	0.270	1.967	363.219	0.027	0.016	0.004
Poway (EDCO)	0.021	0.030	0.541	0.925	322.723	0.012	0.008	0.004
San Marcos (EDCO)	0.018	0.023	0.247	1.270	261.103	0.017	0.010	0.003
Solana Beach (WM)	0.005	0.008	0.127	0.270	83.305	0.004	0.002	0.001
Vista (EDCO)	0.023	0.031	0.547	1.038	340.170	0.014	0.008	0.004
Unincorporated	0.045	0.059	0.851	2.584	660.782	0.035	0.021	0.007
Total	**0.218**	**0.282**	**3.612**	**14**	**3161**	**0.185**	**0.109**	**0.035**

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	24	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	41	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	33	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	21	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	23	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	33	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	23	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	39	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	15	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	39.6	Transfer	16
U2	1,887	6	12	1	13	30	Transfer	13
U3	9,058	30	59	3	62	30	Transfer	62
U4	6,756	22	44	2	46	38	Transfer	46
U5	6,982	23	45	2	48	12.5	Transfer	48
U6	3,397	11	22	1	23	16.3	Transfer	23
U7	7,284	24	47	2	50	17.2	Transfer	50

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	19.7	60,036	210,125	2,859	56,319	266,444
Del Mar (WM)	15.4	29	4,163	64,111	198	5,749	69,860
Encinitas (EDCO)	8.5	29	25,900	220,149	1,233	35,766	255,915
Escondido (EDCO)	1.4	19.7	51,888	72,643	2,471	48,676	121,318
Oceanside (WM)	2.5	19.7	51,810	129,525	2,467	48,603	178,127
Poway (EDCO)	16.5	19.7	22,787	375,990	1,085	21,377	397,366
San Marcos (EDCO)	4.2	19.7	33,036	138,752	1,573	30,991	169,743
Solana Beach (WM)	14.6	29	5,945	86,791	283	8,209	95,000
Vista (EDCO)	14.6	19.7	25,779	376,374	1,228	24,183	400,557
Unincorporated	See Below		75,486	709,001	3,595	86,887	795,889
Total			356,829		16,992		2,750,220
U1	21.5	19.7	4,756	102,246	226	4,461	106,707
U2	12.5	14	3,774	47,179	180	2,516	49,695
U3	11.5	19.7	18,117	208,341	863	16,995	225,336
U4	5	37.2	13,512	67,560	643	23,935	91,495
U5	3	37.2	13,965	41,895	665	24,738	66,632
U6	12	14	6,794	81,525	324	4,529	86,054
U7	11	14	14,569	160,257	694	9,713	169,969

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001
Del Mar(WM)	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000
Encinitas(EDCO)	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002
Escondido(EDCO)	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000
Oceanside(WM)	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001
Poway(EDCO)	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003
San Marcos(EDCO)	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001
Solana Beach(WM)	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001
Vista(EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003

Annual Transfer Station to GCLF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.006	0.007	0.030	0.693	109.939	0.010	0.006	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.013	0.015	0.055	0.860	123.518	0.010	0.006	0.001
Del Mar(WM)	0.001	0.001	0.003	0.071	11.222	0.001	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.005	0.082	12.164	0.001	0.001	0.000
Encinitas(EDCO)	0.004	0.005	0.019	0.440	69.819	0.006	0.004	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.007	0.008	0.030	0.512	75.677	0.007	0.004	0.001
Escondido(EDCO)	0.005	0.006	0.026	0.599	95.019	0.009	0.005	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.011	0.013	0.048	0.743	106.754	0.009	0.005	0.001
Oceanside(WM)	0.005	0.006	0.026	0.598	94.876	0.009	0.005	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.011	0.013	0.048	0.742	106.594	0.009	0.005	0.001
Poway(EDCO)	0.002	0.003	0.011	0.263	41.729	0.004	0.002	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.005	0.006	0.021	0.326	46.883	0.004	0.002	0.000
San Marcos(EDCO)	0.003	0.004	0.016	0.381	60.497	0.006	0.003	0.001	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.007	0.008	0.030	0.473	67.969	0.006	0.003	0.001
Solana Beach(WM)	0.001	0.001	0.004	0.101	16.025	0.001	0.001	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.002	0.007	0.118	17.370	0.001	0.001	0.000
Vista(EDCO)	0.003	0.003	0.013	0.298	47.207	0.004	0.002	0.000	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.006	0.006	0.024	0.369	53.038	0.004	0.003	0.001

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001
U2	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000
U3	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001
U4	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000
U5	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000
U6	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001
U7	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.001	0.001	0.002	0.055	8.709	0.001	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0010	0.0012	0.0044	0.0681	9.7842	0.0008	0.0005	0.0001
U2	0.000	0.000	0.001	0.031	4.912	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0007	0.0008	0.0029	0.0414	5.7655	0.0005	0.0003	0.0001
U3	0.002	0.002	0.009	0.209	33.176	0.003	0.002	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0039	0.0044	0.0167	0.2595	37.2733	0.0031	0.0018	0.0004
U4	0.003	0.003	0.013	0.295	46.724	0.004	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0042	0.0047	0.0183	0.3321	49.7800	0.0043	0.0025	0.0005
U5	0.003	0.003	0.013	0.305	48.290	0.004	0.003	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0043	0.0049	0.0190	0.3432	51.4486	0.0045	0.0026	0.0005
U6	0.001	0.001	0.002	0.056	8.841	0.001	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0013	0.0014	0.0053	0.0746	10.3778	0.0008	0.0005	0.0001
U7	0.001	0.001	0.005	0.120	18.960	0.002	0.001	0.000	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0027	0.0031	0.0113	0.1600	22.2547	0.0018	0.0011	0.0002

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.019	0.025	0.333	0.896	230.441	0.011	0.007	0.003
Del Mar (WM)	0.003	0.004	0.090	0.093	44.787	0.001	0.001	0.001
Encinitas (EDCO)	0.014	0.019	0.321	0.550	187.700	0.007	0.004	0.002
Escondido (EDCO)	0.013	0.016	0.144	0.756	143.719	0.009	0.005	0.002
Oceanside (WM)	0.015	0.019	0.219	0.765	172.503	0.009	0.006	0.002
Poway (EDCO)	0.016	0.024	0.518	0.392	238.206	0.005	0.003	0.003
San Marcos (EDCO)	0.011	0.015	0.214	0.497	138.573	0.006	0.004	0.002
Solana Beach (WM)	0.004	0.006	0.122	0.133	61.533	0.002	0.001	0.001
Vista (EDCO)	0.017	0.025	0.522	0.435	244.557	0.005	0.003	0.003
Unincorporated	0.032	0.045	0.792	1.214	443.660	0.015	0.009	0.005
Total	**0.146**	**0.199**	**3.274**	**6**	**1906**	**0.071**	**0.043**	**0.023**

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self Hauled
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	30	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	48	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	39	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	25	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	26	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	38	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	28	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	45	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	21	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	44.8	Transfer	16
U2	1,887	6	12	1	13	18.2	Transfer	13
U3	9,058	30	59	3	62	35.3	Transfer	62
U4	6,756	22	44	2	46	43	Transfer	46
U5	6,982	23	45	2	48	6.7	Transfer	48
U6	3,397	11	22	1	23	25.4	Transfer	23
U7	7,284	24	47	2	50	25.7	Transfer	50

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self Hauled
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	24.9	60,036	210,125	2,859	71,185	281,310
Del Mar (EWM)	15.4	35.9	4,163	64,111	198	7,117	71,228
Encinitas (EDCO)	8.5	35.9	25,900	220,149	1,233	44,276	264,425
Escondido (EDCO)	1.4	25.1	51,888	72,643	2,471	62,018	134,661
Oceanside (EWM)	2.5	24.9	51,810	129,525	2,467	61,432	190,956
Poway (EDCO)	16.5	25.1	22,787	375,990	1,085	27,236	403,226
San Marcos (EDCO)	4.2	25.1	33,036	138,752	1,573	39,486	178,238
Solana Beach (EWM)	14.6	35.9	5,945	86,791	283	10,162	96,953
Vista (EDCO)	14.6	25.1	25,779	376,374	1,228	30,812	407,186
Unincorporated	See Below		75,486	709,001	3,595	92,618	801,619
Total			356,829		16,992		2,829,803
U1	21.5	24.9	4,756	102,246	226	5,639	107,884
U2	12.5	7.9	3,774	47,179	180	1,420	48,599
U3	11.5	25.1	18,117	208,341	863	21,654	229,995
U4	5	42.7	13,512	67,560	643	27,474	95,034
U5	3	42.7	13,965	41,895	665	28,395	70,290
U6	12	7.9	6,794	81,525	324	2,556	84,080
U7	11	7.9	14,569	160,257	694	5,481	165,737

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001
Del Mar(EWM)	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000
Encinitas(EDCO)	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002
Escondido(EDCO)	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000
Oceanside(EWM)	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001
Poway(EDCO)	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003
San Marcos(EDCO)	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001
Solana Beach(EWM)	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001
Vista(EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003

Annual Transfer Station to Aspen Road Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.008	0.009	0.037	0.876	138.959	0.013	0.007	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.015	0.017	0.063	1.043	152.537	0.013	0.008	0.001
Del Mar(EWM)	0.001	0.001	0.004	0.088	13.893	0.001	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.006	0.099	14.834	0.001	0.001	0.000
Encinitas(EDCO)	0.005	0.006	0.023	0.545	86.431	0.008	0.005	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.008	0.009	0.034	0.617	92.289	0.008	0.005	0.001
Escondido(EDCO)	0.007	0.008	0.033	0.763	121.064	0.011	0.006	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.013	0.014	0.055	0.907	132.800	0.011	0.007	0.001
Oceanside(EWM)	0.007	0.008	0.032	0.756	119.920	0.011	0.006	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.013	0.014	0.054	0.900	131.638	0.011	0.007	0.001
Poway(EDCO)	0.003	0.003	0.014	0.335	53.167	0.005	0.003	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.006	0.006	0.024	0.398	58.321	0.005	0.003	0.001
San Marcos(EDCO)	0.004	0.005	0.021	0.486	77.080	0.007	0.004	0.001	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.008	0.009	0.035	0.578	84.552	0.007	0.004	0.001
Solana Beach(EWM)	0.001	0.001	0.005	0.125	19.838	0.002	0.001	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.002	0.008	0.142	21.182	0.002	0.001	0.000
Vista(EDCO)	0.003	0.004	0.016	0.379	60.148	0.005	0.003	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.006	0.007	0.027	0.451	65.978	0.006	0.003	0.001

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001
U2	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000
U3	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001
U4	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000
U5	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000
U6	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001
U7	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.001	0.001	0.003	0.069	11.007	0.001	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0012	0.0013	0.0050	0.0826	12.0830	0.0010	0.0006	0.0001
U2	0.000	0.000	0.001	0.017	2.772	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0006	0.0007	0.0024	0.0279	3.6253	0.0003	0.0002	0.0000
U3	0.002	0.003	0.011	0.267	42.270	0.004	0.002	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0044	0.0050	0.0191	0.3168	46.3671	0.0040	0.0023	0.0004
U4	0.003	0.004	0.014	0.338	53.632	0.005	0.003	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0046	0.0052	0.0202	0.3757	56.6881	0.0050	0.0029	0.0005
U5	0.003	0.004	0.015	0.350	55.430	0.005	0.003	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0047	0.0054	0.0209	0.3883	58.5883	0.0051	0.0030	0.0006
U6	0.000	0.000	0.001	0.031	4.989	0.000	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0010	0.0012	0.0042	0.0503	6.5256	0.0005	0.0003	0.0001
U7	0.001	0.001	0.003	0.067	10.699	0.001	0.001	0.000	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0022	0.0025	0.0091	0.1079	13.9937	0.0011	0.0006	0.0001

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.021	0.027	0.341	1.079	259.460	0.013	0.008	0.003
Del Mar (EWM)	0.003	0.005	0.090	0.110	47.457	0.001	0.001	0.001
Encinitas (EDCO)	0.015	0.020	0.325	0.655	204.312	0.009	0.005	0.002
Escondido (EDCO)	0.015	0.018	0.151	0.920	169.764	0.011	0.007	0.002
Oceanside (EWM)	0.017	0.021	0.226	0.922	197.547	0.012	0.007	0.002
Poway (EDCO)	0.017	0.025	0.521	0.464	249.645	0.006	0.004	0.003
San Marcos (EDCO)	0.012	0.016	0.218	0.602	155.156	0.008	0.005	0.002
Solana Beach (EWM)	0.004	0.006	0.123	0.157	65.346	0.002	0.001	0.001
Vista (EDCO)	0.018	0.026	0.525	0.516	257.497	0.006	0.004	0.003
Unincorporated	0.033	0.046	0.798	1.337	463.108	0.017	0.010	0.006
Total	**0.155**	**0.210**	**3.318**	**7**	**2069**	**0.085**	**0.052**	**0.024**

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to Gopher Canyon (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	13	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	29	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	22	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	17	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	15	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	29	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	10	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	28	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	5	Direct	84
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	33	Transfer	16
U2	1,887	6	12	1	13	25.5	Transfer	13
U3	9,058	30	59	3	62	20.3	Transfer	62
U4	6,756	22	44	2	46	34	Transfer	46
U5	6,982	23	45	2	48	14	Transfer	48
U6	3,397	11	22	1	23	19.4	Transfer	23
U7	7,284	24	47	2	50	6.1	Direct	47

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	11.2	60,036	210,125	2,859	32,019	242,144
Del Mar (EWM)	15.4	12.1	4,163	64,111	198	2,399	66,510
Encinitas (EDCO)	8.5	12.1	25,900	220,149	1,233	14,923	235,072
Escondido (EDCO)	1.4	16.6	51,888	72,643	2,471	41,016	113,659
Oceanside (EWM)	2.5	11.2	51,810	129,525	2,467	27,632	157,157
Poway (EDCO)	16.5	16.6	22,787	375,990	1,085	18,013	394,003
San Marcos (EDCO)	4.2	16.6	33,036	138,752	1,573	26,114	164,866
Solana Beach (EWM)	14.6	12.1	5,945	86,791	283	3,425	90,216
Vista (EDCO)	14.6	16.6	25,779	376,374	0	0	121,161
Unincorporated	See Below		75,486	709,001	2,901	68,157	705,771
Total			356,829		15,071		2,290,559
U1	21.5	11.2	4,756	102,246	226	2,536	104,782
U2	12.5	13.8	3,774	47,179	180	2,480	49,659
U3	11.5	16.6	18,117	208,341	863	14,321	222,662
U4	5	33.9	13,512	67,560	643	21,812	89,372
U5	3	33.9	13,965	41,895	665	22,543	64,438
U6	12	13.8	6,794	81,525	324	4,464	85,989
U7	11	13.8	14,569	160,257	0	0	88,870

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001
Del Mar(WM)	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000
Encinitas(EDCO)	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002
Escondido(EDCO)	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000
Oceanside(WM)	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001
Poway(EDCO)	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003
San Marcos(EDCO)	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001
Solana Beach(WM)	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001
Vista(EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003

Annual Transfer Station to Gopher Canyon Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.004	0.004	0.017	0.394	62.504	0.006	0.003	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.010	0.012	0.043	0.561	76.082	0.006	0.004	0.001
Del Mar(WM)	0.000	0.000	0.001	0.030	4.682	0.000	0.000	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.003	0.041	5.624	0.000	0.000	0.000
Encinitas(EDCO)	0.002	0.002	0.008	0.184	29.131	0.003	0.002	0.000	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.005	0.005	0.019	0.256	34.989	0.003	0.002	0.000
Escondido(EDCO)	0.005	0.005	0.022	0.505	80.066	0.007	0.004	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.010	0.012	0.044	0.649	91.802	0.008	0.005	0.001
Oceanside(WM)	0.003	0.004	0.014	0.340	53.940	0.005	0.003	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.009	0.010	0.037	0.484	65.658	0.005	0.003	0.001
Poway(EDCO)	0.002	0.002	0.009	0.222	35.162	0.003	0.002	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.005	0.005	0.019	0.285	40.316	0.003	0.002	0.000
San Marcos(EDCO)	0.003	0.003	0.014	0.321	50.977	0.005	0.003	0.000	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.007	0.007	0.028	0.413	58.449	0.005	0.003	0.001
Solana Beach(WM)	0.000	0.000	0.002	0.042	6.686	0.001	0.000	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.001	0.001	0.004	0.059	8.031	0.001	0.000	0.000
Vista(EDCO)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001
U2	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000
U3	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001
U4	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000
U5	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000
U6	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001
U7	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.000	0.000	0.001	0.031	4.951	0.000	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0008	0.0009	0.0034	0.0444	6.0267	0.0005	0.0003	0.0001
U2	0.000	0.000	0.001	0.031	4.842	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0007	0.0008	0.0029	0.0410	5.6953	0.0005	0.0003	0.0001
U3	0.002	0.002	0.008	0.176	27.955	0.003	0.001	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0036	0.0041	0.0153	0.2265	32.0527	0.0027	0.0016	0.0003
U4	0.002	0.003	0.011	0.268	42.579	0.004	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0039	0.0045	0.0172	0.3060	45.6351	0.0040	0.0023	0.0004
U5	0.003	0.003	0.012	0.277	44.006	0.004	0.002	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0041	0.0046	0.0178	0.3162	47.1648	0.0041	0.0024	0.0004
U6	0.001	0.001	0.002	0.055	8.715	0.001	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0012	0.0014	0.0053	0.0738	10.2515	0.0008	0.0005	0.0001
U7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.017	0.022	0.320	0.597	183.005	0.007	0.004	0.002
Del Mar (EWM)	0.003	0.004	0.088	0.052	38.247	0.001	0.000	0.000
Encinitas (EDCO)	0.011	0.016	0.310	0.294	147.012	0.003	0.002	0.002
Escondido (EDCO)	0.013	0.015	0.140	0.661	128.767	0.008	0.005	0.001
Oceanside (EWM)	0.013	0.016	0.208	0.506	131.567	0.006	0.003	0.002
Poway (EDCO)	0.016	0.024	0.517	0.350	231.640	0.004	0.003	0.003
San Marcos (EDCO)	0.011	0.014	0.211	0.437	129.054	0.005	0.003	0.002
Solana Beach (EWM)	0.004	0.006	0.119	0.074	52.195	0.001	0.001	0.001
Vista (EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003
Unincorporated	0.031	0.044	0.788	1.103	426.057	0.014	0.008	0.005
Total	**0.129**	**0.180**	**3.199**	**4**	**1659**	**0.048**	**0.030**	**0.020**

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to Merriam Mountain (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	18	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	34	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	27	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	12	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	20	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	25	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	7	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	33	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	9	Direct	84
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	38.5	Transfer	16
U2	1,887	6	12	1	13	35.5	Transfer	13
U3	9,058	30	59	3	62	22.2	Transfer	62
U4	6,756	22	44	2	46	30	Transfer	46
U5	6,982	23	45	2	48	23.9	Transfer	48
U6	3,397	11	22	1	23	20.7	Transfer	23
U7	7,284	24	47	2	50	7.9	Direct	47

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	18.7	60,036	210,125	2,859	53,460	263,585
Del Mar (WM)	15.4	13.5	4,163	64,111	198	2,676	66,787
Encinitas (EDCO)	8.5	13.5	25,900	220,149	1,233	16,650	236,798
Escondido (EDCO)	1.4	13.1	51,888	72,643	2,471	32,368	105,011
Oceanside (WM)	2.5	18.7	51,810	129,525	2,467	46,135	175,660
Poway (EDCO)	16.5	13.1	22,787	375,990	1,085	14,215	390,205
San Marcos (EDCO)	4.2	13.1	33,036	138,752	1,573	20,608	159,360
Solana Beach (WM)	14.6	13.5	5,945	86,791	283	3,822	90,613
Vista (EDCO)	14.6	13.1	25,779	376,374	0	0	229,433
Unincorporated	See Below		75,486	709,001	2,901	59,549	723,387
Total			356,829		15,071		2,440,840
U1	21.5	18.7	4,756	102,246	226	4,235	106,480
U2	12.5	7.9	3,774	47,179	180	1,420	48,599
U3	11.5	13.1	18,117	208,341	863	11,301	219,642
U4	5	30.6	13,512	67,560	643	19,689	87,249
U5	3	30.6	13,965	41,895	665	20,349	62,243
U6	12	7.9	6,794	81,525	324	2,556	84,080
U7	11	7.9	14,569	160,257	0	0	115,093

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001
Del Mar(BWM)	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000
Encinitas(EDCO)	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002
Escondido(EDCO)	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000
Oceanside(BWM)	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001
Poway(EDCO)	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003
San Marcos(EDCO)	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001
Solana Beach(BWM)	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001
Vista(EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003

Annual Transfer Station to Merriam Mountain Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.006	0.007	0.028	0.658	104.359	0.009	0.005	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.013	0.014	0.054	0.825	117.937	0.010	0.006	0.001
Del Mar(BWM)	0.000	0.000	0.001	0.033	5.224	0.000	0.000	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.003	0.044	6.166	0.001	0.000	0.000
Encinitas(EDCO)	0.002	0.002	0.009	0.205	32.502	0.003	0.002	0.000	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.005	0.005	0.020	0.277	38.360	0.003	0.002	0.000
Escondido(EDCO)	0.004	0.004	0.017	0.398	63.185	0.006	0.003	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.009	0.011	0.039	0.542	74.921	0.006	0.004	0.001
Oceanside(BWM)	0.005	0.006	0.024	0.568	90.060	0.008	0.005	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.011	0.012	0.046	0.712	101.778	0.009	0.005	0.001
Poway(EDCO)	0.002	0.002	0.007	0.175	27.749	0.003	0.001	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.004	0.005	0.017	0.238	32.902	0.003	0.002	0.000
San Marcos(EDCO)	0.002	0.003	0.011	0.254	40.229	0.004	0.002	0.000	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.006	0.007	0.025	0.345	47.701	0.004	0.002	0.000
Solana Beach(BWM)	0.000	0.000	0.002	0.047	7.460	0.001	0.000	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.001	0.001	0.005	0.064	8.804	0.001	0.000	0.000
Vista(EDCO)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Interim Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001
U2	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000
U3	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001
U4	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000
U5	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000
U6	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001
U7	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.000	0.001	0.002	0.052	8.267	0.001	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0010	0.0011	0.0043	0.0653	9.3422	0.0008	0.0005	0.0001
U2	0.000	0.000	0.001	0.017	2.772	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0006	0.0007	0.0024	0.0279	3.6253	0.0003	0.0002	0.0000
U3	0.001	0.001	0.006	0.139	22.061	0.002	0.001	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0033	0.0037	0.0137	0.1894	26.1585	0.0021	0.0013	0.0002
U4	0.002	0.003	0.010	0.242	38.434	0.003	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0037	0.0042	0.0161	0.2798	41.4903	0.0036	0.0021	0.0004
U5	0.002	0.003	0.011	0.250	39.723	0.004	0.002	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0038	0.0043	0.0167	0.2892	42.8810	0.0037	0.0022	0.0004
U6	0.000	0.000	0.001	0.031	4.989	0.000	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0010	0.0012	0.0042	0.0503	6.5256	0.0005	0.0003	0.0001
U7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.019	0.025	0.332	0.861	224.860	0.010	0.006	0.003
Del Mar (WM)	0.003	0.004	0.088	0.056	38.789	0.001	0.000	0.000
Encinitas (EDCO)	0.011	0.016	0.311	0.315	150.383	0.004	0.002	0.002
Escondido (EDCO)	0.012	0.014	0.135	0.555	111.885	0.006	0.004	0.001
Oceanside (WM)	0.015	0.019	0.218	0.734	167.687	0.009	0.005	0.002
Poway (EDCO)	0.016	0.023	0.515	0.304	224.226	0.004	0.002	0.003
San Marcos (EDCO)	0.010	0.014	0.208	0.369	118.305	0.004	0.003	0.001
Solana Beach (WM)	0.004	0.006	0.119	0.079	52.968	0.001	0.001	0.001
Vista (EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003
Unincorporated	0.030	0.043	0.783	0.998	409.253	0.012	0.008	0.005
Total	**0.131**	**0.182**	**3.207**	**4**	**1690**	**0.051**	**0.032**	**0.021**

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Interim Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (EDCO)	30,018	98	196	9	205	56	Transfer	205
Del Mar (EDCO)	2,082	7	14	1	14	42	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	48	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	52	Transfer	177
Oceanside (EDCO)	25,905	84	169	8	177	59	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	43	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	56	Transfer	113
Solana Beach (EDCO)	2,972	10	19	1	20	43	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	62	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	78.6	Transfer	16
U2	1,887	6	12	1	13	87.1	Transfer	13
U3	9,058	30	59	3	62	48	Transfer	62
U4	6,756	22	44	2	46	50	Transfer	46
U5	6,982	23	45	2	48	75.6	Transfer	48
U6	3,397	11	22	1	23	62.3	Transfer	23
U7	7,284	24	47	2	50	60.9	Transfer	50

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Interim Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (EWM)	3.5	59.7	60,036	210,125	2,859	170,673	380,798
Del Mar (EWM)	15.4	56.9	4,163	64,111	198	11,280	75,391
Encinitas (EDCO)	8.5	56.9	25,900	220,149	1,233	70,176	290,325
Escondido (EDCO)	1.4	51.8	51,888	72,643	2,471	127,990	200,632
Oceanside (EWM)	2.5	59.7	51,810	129,525	2,467	147,288	276,813
Poway (EDCO)	16.5	51.8	22,787	375,990	1,085	56,209	432,198
San Marcos (EDCO)	4.2	51.8	33,036	138,752	1,573	81,489	220,241
Solana Beach (EWM)	14.6	56.9	5,945	86,791	283	16,107	102,898
Vista (EDCO)	14.6	51.8	25,779	376,374	1,228	63,588	439,962
Unincorporated	See Below		75,486	709,001	3,595	217,770	926,771
Total			356,829		16,992		3,346,030
U1	21.5	59.7	4,756	102,246	226	13,520	115,765
U2	12.5	76.9	3,774	47,179	180	13,821	61,000
U3	11.5	51.8	18,117	208,341	863	44,688	253,029
U4	5	51.6	13,512	67,560	643	33,201	100,761
U5	3	51.6	13,965	41,895	665	34,314	76,208
U6	12	76.9	6,794	81,525	324	24,878	106,403
U7	11	76.9	14,569	160,257	694	53,349	213,606

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.278	0.037	106.923	0.000	0.000	0.001
Del Mar(EWM)	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.085	0.011	32.623	0.000	0.000	0.000
Encinitas(EDCO)	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.011	0.291	0.038	112.023	0.000	0.000	0.002
Escondido(EDCO)	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.096	0.013	36.965	0.000	0.000	0.000
Oceanside(EWM)	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.006	0.171	0.023	65.909	0.000	0.000	0.001
Poway(EDCO)	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.497	0.065	191.324	0.001	0.001	0.003
San Marcos(EDCO)	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.184	0.024	70.604	0.000	0.000	0.001
Solana Beach(EWM)	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.004	0.115	0.015	44.164	0.000	0.000	0.001
Vista(EDCO)	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.011	0.019	0.498	0.066	191.519	0.001	0.001	0.003

Annual Transfer Station to East Otay Mesa Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.019	0.022	0.090	2.101	333.167	0.030	0.017	0.003	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.026	0.029	0.115	2.267	346.745	0.031	0.018	0.003
Del Mar(EWM)	0.001	0.001	0.006	0.139	22.019	0.002	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.002	0.002	0.008	0.150	22.961	0.002	0.001	0.000
Encinitas(EDCO)	0.008	0.009	0.037	0.864	136.989	0.012	0.007	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.011	0.012	0.048	0.936	142.847	0.013	0.007	0.001
Escondido(EDCO)	0.014	0.016	0.067	1.575	249.846	0.023	0.013	0.002	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.020	0.023	0.089	1.719	261.582	0.023	0.013	0.002
Oceanside(EWM)	0.017	0.019	0.077	1.813	287.518	0.026	0.015	0.003	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.022	0.025	0.099	1.957	299.236	0.026	0.015	0.003
Poway(EDCO)	0.006	0.007	0.029	0.692	109.724	0.010	0.006	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.009	0.010	0.039	0.755	114.877	0.010	0.006	0.001
San Marcos(EDCO)	0.009	0.010	0.043	1.003	159.074	0.014	0.008	0.002	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.013	0.015	0.057	1.095	166.545	0.015	0.009	0.002
Solana Beach(EWM)	0.002	0.002	0.008	0.198	31.442	0.003	0.002	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.003	0.011	0.215	32.787	0.003	0.002	0.000
Vista(EDCO)	0.007	0.008	0.033	0.783	124.129	0.011	0.007	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.010	0.011	0.044	0.854	129.960	0.011	0.007	0.001

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Interim Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.135	0.018	52.028	0.000	0.000	0.001
U2	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.062	0.008	24.007	0.000	0.000	0.000
U3	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.006	0.010	0.276	0.036	106.015	0.000	0.000	0.001
U4	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.089	0.012	34.378	0.000	0.000	0.000
U5	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.055	0.007	21.318	0.000	0.000	0.000
U6	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.108	0.014	41.484	0.000	0.000	0.001
U7	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.005	0.008	0.212	0.028	81.547	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.002	0.007	0.166	26.391	0.002	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0020	0.0023	0.0091	0.1796	27.4668	0.0024	0.0014	0.0003
U2	0.002	0.002	0.007	0.170	26.980	0.002	0.001	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0020	0.0022	0.0089	0.1806	27.8335	0.0025	0.0014	0.0003
U3	0.005	0.006	0.023	0.550	87.234	0.008	0.005	0.001	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0070	0.0080	0.0312	0.6003	91.3313	0.0080	0.0047	0.0009
U4	0.004	0.004	0.017	0.409	64.811	0.006	0.003	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0052	0.0059	0.0232	0.4462	67.8667	0.0060	0.0035	0.0006
U5	0.004	0.004	0.018	0.422	66.983	0.006	0.004	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0054	0.0061	0.0240	0.4611	70.1416	0.0062	0.0036	0.0007
U6	0.003	0.003	0.013	0.306	48.564	0.004	0.003	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0035	0.0040	0.0160	0.3251	50.1003	0.0045	0.0026	0.0005
U7	0.006	0.007	0.028	0.657	104.142	0.009	0.005	0.001	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0076	0.0086	0.0342	0.6971	107.4374	0.0096	0.0056	0.0010

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self Hauled
Interim Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.032	0.040	0.393	2.304	453.668	0.031	0.018	0.005
Del Mar (WM)	0.004	0.005	0.092	0.162	55.584	0.002	0.001	0.001
Encinitas (EDCO)	0.017	0.023	0.339	0.974	254.871	0.013	0.008	0.003
Escondido (EDCO)	0.022	0.026	0.185	1.732	298.546	0.023	0.014	0.003
Oceanside (WM)	0.026	0.032	0.271	1.979	365.145	0.027	0.016	0.004
Poway (EDCO)	0.020	0.029	0.537	0.821	306.201	0.011	0.007	0.004
San Marcos (EDCO)	0.017	0.021	0.240	1.119	237.150	0.015	0.009	0.003
Solana Beach (WM)	0.005	0.007	0.126	0.230	76.951	0.003	0.002	0.001
Vista (EDCO)	0.021	0.030	0.542	0.920	321.479	0.012	0.007	0.004
Unincorporated	0.042	0.056	0.838	2.288	613.971	0.031	0.018	0.007
Total	**0.208**	**0.270**	**3.564**	**13**	**2984**	**0.169**	**0.100**	**0.033**

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	64	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	82	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	73	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	60	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	61	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	72	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	62	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	78	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	55	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	56.5	Transfer	16
U2	1,887	6	12	1	13	57.6	Transfer	13
U3	9,058	30	59	3	62	69.6	Transfer	62
U4	6,756	22	44	2	46	77	Transfer	46
U5	6,982	23	45	2	48	43.6	Transfer	48
U6	3,397	11	22	1	23	54.9	Transfer	23
U7	7,284	24	47	2	50	60.5	Transfer	50

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	59.3	60,036	210,125	2,859	169,529	379,654
Del Mar (WM)	15.4	68.4	4,163	64,111	198	13,560	77,671
Encinitas (EDCO)	8.5	68.4	25,900	220,149	1,233	84,359	304,508
Escondido (EDCO)	1.4	59.6	51,888	72,643	2,471	147,262	219,905
Oceanside (WM)	2.5	59.3	51,810	129,525	2,467	146,301	275,826
Poway (EDCO)	16.5	59.6	22,787	375,990	1,085	64,672	440,662
San Marcos (EDCO)	4.2	59.6	33,036	138,752	1,573	93,760	232,512
Solana Beach (WM)	14.6	68.4	5,945	86,791	283	19,362	106,153
Vista (EDCO)	14.6	59.6	25,779	376,374	1,228	73,163	449,537
Unincorporated	See Below		75,486	709,001	3,595	219,481	928,482
Total			356,829		16,992		3,414,911
U1	21.5	59.3	4,756	102,246	226	13,429	115,675
U2	12.5	44.8	3,774	47,179	180	8,052	55,231
U3	11.5	59.6	18,117	208,341	863	51,417	259,758
U4	5	77.2	13,512	67,560	643	49,673	117,232
U5	3	77.2	13,965	41,895	665	51,338	93,232
U6	12	44.8	6,794	81,525	324	14,493	96,018
U7	11	44.8	14,569	160,257	694	31,080	191,337

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001
Del Mar(WM)	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000
Encinitas(EDCO)	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002
Escondido(EDCO)	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000
Oceanside(WM)	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001
Poway(EDCO)	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003
San Marcos(EDCO)	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001
Solana Beach(WM)	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001
Vista(EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003

Annual Transfer Station to LF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.019	0.022	0.089	2.087	330.935	0.030	0.017	0.003	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.026	0.029	0.115	2.253	344.513	0.030	0.018	0.003
Del Mar(WM)	0.002	0.002	0.007	0.167	26.470	0.002	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.002	0.002	0.009	0.178	27.411	0.002	0.001	0.000
Encinitas(EDCO)	0.009	0.011	0.044	1.038	164.676	0.015	0.009	0.002	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.012	0.014	0.055	1.110	170.534	0.015	0.009	0.002
Escondido(EDCO)	0.017	0.019	0.077	1.813	287.468	0.026	0.015	0.003	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.022	0.025	0.099	1.957	299.203	0.026	0.015	0.003
Oceanside(WM)	0.016	0.019	0.077	1.801	285.592	0.026	0.015	0.003	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.022	0.025	0.099	1.945	297.310	0.026	0.015	0.003
Poway(EDCO)	0.007	0.008	0.034	0.796	126.246	0.011	0.007	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.010	0.011	0.044	0.859	131.400	0.012	0.007	0.001
San Marcos(EDCO)	0.011	0.012	0.049	1.154	183.027	0.017	0.010	0.002	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.014	0.016	0.063	1.246	190.499	0.017	0.010	0.002
Solana Beach(WM)	0.002	0.002	0.010	0.238	37.797	0.003	0.002	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.003	0.003	0.013	0.255	39.141	0.003	0.002	0.000
Vista(EDCO)	0.008	0.009	0.038	0.901	142.821	0.013	0.008	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.011	0.013	0.049	0.972	148.651	0.013	0.008	0.001

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001
U2	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000
U3	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001
U4	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000
U5	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000
U6	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001
U7	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.002	0.007	0.165	26.214	0.002	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0020	0.0023	0.0091	0.1785	27.2899	0.0024	0.0014	0.0003
U2	0.001	0.001	0.004	0.099	15.718	0.001	0.001	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0013	0.0015	0.0058	0.1096	16.5714	0.0015	0.0008	0.0002
U3	0.006	0.007	0.027	0.633	100.369	0.009	0.005	0.001	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0078	0.0088	0.0347	0.6832	104.4669	0.0092	0.0054	0.0010
U4	0.006	0.006	0.026	0.611	96.965	0.009	0.005	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0071	0.0080	0.0318	0.6489	100.0208	0.0089	0.0052	0.0010
U5	0.006	0.007	0.027	0.632	100.215	0.009	0.005	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0073	0.0083	0.0329	0.6707	103.3735	0.0092	0.0053	0.0010
U6	0.002	0.002	0.008	0.178	28.292	0.003	0.001	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0024	0.0027	0.0105	0.1973	29.8286	0.0026	0.0015	0.0003
U7	0.003	0.004	0.016	0.383	60.671	0.006	0.003	0.001	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0051	0.0058	0.0225	0.4230	63.9658	0.0056	0.0033	0.0006

Gregory Canyon Landfill Draft EIS
No Action Alternative VMT Emissions Calculation - Self-Hauled
Future Interim Operational Year/Final Operational Year/Closing Year/Post-Closure Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.030	0.036	0.315	2.275	445.285	0.031	0.018	0.005
Del Mar (EWM)	0.003	0.004	0.070	0.185	58.158	0.003	0.002	0.001
Encinitas (EDCO)	0.016	0.021	0.265	1.133	276.113	0.016	0.009	0.003
Escondido (EDCO)	0.024	0.028	0.169	1.964	334.041	0.027	0.016	0.003
Oceanside (EWM)	0.025	0.029	0.222	1.958	359.427	0.027	0.016	0.004
Poway (EDCO)	0.017	0.024	0.402	0.899	311.717	0.012	0.008	0.004
San Marcos (EDCO)	0.017	0.021	0.196	1.260	257.041	0.017	0.010	0.003
Solana Beach (EWM)	0.004	0.006	0.095	0.264	80.765	0.004	0.002	0.001
Vista (EDCO)	0.018	0.025	0.408	1.012	329.152	0.014	0.008	0.004
Unincorporated	0.038	0.050	0.648	2.546	644.718	0.035	0.021	0.007
Total	**0.192**	**0.244**	**2.792**	**13**	**3096**	**0.185**	**0.109**	**0.035**

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	24	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	41	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	33	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	21	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	23	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	33	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	23	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	39	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	15	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	39.6	Transfer	16
U2	1,887	6	12	1	13	30	Transfer	13
U3	9,058	30	59	3	62	30	Transfer	62
U4	6,756	22	44	2	46	38	Transfer	46
U5	6,982	23	45	2	48	12.5	Transfer	48
U6	3,397	11	22	1	23	16.3	Transfer	23
U7	7,284	24	47	2	50	17.2	Transfer	50

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	19.7	60,036	210,125	2,859	56,319	266,444
Del Mar (WM)	15.4	29	4,163	64,111	198	5,749	69,860
Encinitas (EDCO)	8.5	29	25,900	220,149	1,233	35,766	255,915
Escondido (EDCO)	1.4	19.7	51,888	72,643	2,471	48,676	121,318
Oceanside (WM)	2.5	19.7	51,810	129,525	2,467	48,603	178,127
Poway (EDCO)	16.5	19.7	22,787	375,990	1,085	21,377	397,366
San Marcos (EDCO)	4.2	19.7	33,036	138,752	1,573	30,991	169,743
Solana Beach (WM)	14.6	29	5,945	86,791	283	8,209	95,000
Vista (EDCO)	14.6	19.7	25,779	376,374	1,228	24,183	400,557
Unincorporated	See Below		75,486	709,001	3,595	86,887	795,889
Total			356,829		16,992		2,750,220
U1	21.5	19.7	4,756	102,246	226	4,461	106,707
U2	12.5	14	3,774	47,179	180	2,516	49,695
U3	11.5	19.7	18,117	208,341	863	16,995	225,336
U4	5	37.2	13,512	67,560	643	23,935	91,495
U5	3	37.2	13,965	41,895	665	24,738	66,632
U6	12	14	6,794	81,525	324	4,529	86,054
U7	11	14	14,569	160,257	694	9,713	169,969

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001
Del Mar(WM)	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000
Encinitas(EDCO)	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002
Escondido(EDCO)	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000
Oceanside(WM)	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001
Poway(EDCO)	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003
San Marcos(EDCO)	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001
Solana Beach(WM)	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001
Vista(EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003

Annual Transfer Station to GCLF Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.006	0.007	0.030	0.693	109.939	0.010	0.006	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.013	0.015	0.055	0.860	123.518	0.010	0.006	0.001
Del Mar(WM)	0.001	0.001	0.003	0.071	11.222	0.001	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.005	0.082	12.164	0.001	0.001	0.000
Encinitas(EDCO)	0.004	0.005	0.019	0.440	69.819	0.006	0.004	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.007	0.008	0.030	0.512	75.677	0.007	0.004	0.001
Escondido(EDCO)	0.005	0.006	0.026	0.599	95.019	0.009	0.005	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.011	0.013	0.048	0.743	106.754	0.009	0.005	0.001
Oceanside(WM)	0.005	0.006	0.026	0.598	94.876	0.009	0.005	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.011	0.013	0.048	0.742	106.594	0.009	0.005	0.001
Poway(EDCO)	0.002	0.003	0.011	0.263	41.729	0.004	0.002	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.005	0.006	0.021	0.326	46.883	0.004	0.002	0.000
San Marcos(EDCO)	0.003	0.004	0.016	0.381	60.497	0.006	0.003	0.001	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.007	0.008	0.030	0.473	67.969	0.006	0.003	0.001
Solana Beach(WM)	0.001	0.001	0.004	0.101	16.025	0.001	0.001	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.002	0.007	0.118	17.370	0.001	0.001	0.000
Vista(EDCO)	0.003	0.003	0.013	0.298	47.207	0.004	0.002	0.000	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.006	0.006	0.024	0.369	53.038	0.004	0.003	0.001

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001
U2	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000
U3	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001
U4	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000
U5	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000
U6	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001
U7	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.001	0.001	0.002	0.055	8.709	0.001	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0010	0.0012	0.0044	0.0681	9.7842	0.0008	0.0005	0.0001
U2	0.000	0.000	0.001	0.031	4.912	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0007	0.0008	0.0029	0.0414	5.7655	0.0005	0.0003	0.0001
U3	0.002	0.002	0.009	0.209	33.176	0.003	0.002	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0039	0.0044	0.0167	0.2595	37.2733	0.0031	0.0018	0.0004
U4	0.003	0.003	0.013	0.295	46.724	0.004	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0042	0.0047	0.0183	0.3321	49.7800	0.0043	0.0025	0.0005
U5	0.003	0.003	0.013	0.305	48.290	0.004	0.003	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0043	0.0049	0.0190	0.3432	51.4486	0.0045	0.0026	0.0005
U6	0.001	0.001	0.002	0.056	8.841	0.001	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0013	0.0014	0.0053	0.0746	10.3778	0.0008	0.0005	0.0001
U7	0.001	0.001	0.005	0.120	18.960	0.002	0.001	0.000	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0027	0.0031	0.0113	0.1600	22.2547	0.0018	0.0011	0.0002

Gregory Canyon Landfill Draft EIS
Gregory Canyon VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (PWM)	0.017	0.022	0.256	0.882	224.290	0.011	0.007	0.003
Del Mar (PWM)	0.002	0.003	0.066	0.089	42.910	0.001	0.001	0.001
Encinitas (EDCO)	0.011	0.015	0.240	0.535	181.256	0.007	0.004	0.002
Escondido (EDCO)	0.013	0.015	0.117	0.751	141.592	0.009	0.005	0.002
Oceanside (PWM)	0.014	0.017	0.171	0.756	168.712	0.009	0.006	0.002
Poway (EDCO)	0.012	0.018	0.380	0.366	227.200	0.005	0.003	0.003
San Marcos (EDCO)	0.010	0.013	0.163	0.488	134.512	0.006	0.004	0.002
Solana Beach (PWM)	0.003	0.005	0.090	0.127	58.993	0.002	0.001	0.001
Vista (EDCO)	0.013	0.019	0.383	0.409	233.539	0.005	0.003	0.003
Unincorporated	0.026	0.036	0.590	1.177	427.596	0.015	0.009	0.005
Total	**0.120**	**0.162**	**2.455**	**6**	**1841**	**0.071**	**0.043**	**0.023**

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self-Hauled
Final Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (EDCO)	30,018	196	9	205	30	Transfer	205
Del Mar (EDCO)	2,082	14	1	14	48	Transfer	14
Encinitas (EDCO)	12,950	84	4	88	39	Transfer	88
Escondido (EDCO)	25,944	169	8	177	25	Transfer	177
Oceanside (EDCO)	25,905	169	8	177	26	Transfer	177
Poway (EDCO)	11,394	74	4	78	38	Transfer	78
San Marcos (EDCO)	16,518	108	5	113	28	Transfer	113
Solana Beach (EDCO)	2,972	19	1	20	45	Transfer	20
Vista (EDCO)	12,890	84	4	88	21	Transfer	88
Unincorporated	37,743	246	12	258	30	See Below	258
Total	178,415	1,162	55	1,218	See Below		
U1	2,378	15	1	16	44.8	Transfer	16
U2	1,887	12	1	13	18.2	Transfer	13
U3	9,058	59	3	62	35.3	Transfer	62
U4	6,756	44	2	46	43	Transfer	46
U5	6,982	45	2	48	6.7	Transfer	48
U6	3,397	22	1	23	25.4	Transfer	23
U7	7,284	47	2	50	25.7	Transfer	50

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self-Hauled
Final Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	24.9	60,036	210,125	2,859	71,185	281,310
Del Mar (WM)	15.4	35.9	4,163	64,111	198	7,117	71,228
Encinitas (EDCO)	8.5	35.9	25,900	220,149	1,233	44,276	264,425
Escondido (EDCO)	1.4	25.1	51,888	72,643	2,471	62,018	134,661
Oceanside (WM)	2.5	24.9	51,810	129,525	2,467	61,432	190,956
Poway (EDCO)	16.5	25.1	22,787	375,990	1,085	27,236	403,226
San Marcos (EDCO)	4.2	25.1	33,036	138,752	1,573	39,486	178,238
Solana Beach (WM)	14.6	35.9	5,945	86,791	283	10,162	96,953
Vista (EDCO)	14.6	25.1	25,779	376,374	1,228	30,812	407,186
Unincorporated	See Below		75,486	709,001	3,595	92,618	801,619
Total			356,829		16,992		2,829,803
U1	21.5	24.9	4,756	102,246	226	5,639	107,884
U2	12.5	7.9	3,774	47,179	180	1,420	48,599
U3	11.5	25.1	18,117	208,341	863	21,654	229,995
U4	5	42.7	13,512	67,560	643	27,474	95,034
U5	3	42.7	13,965	41,895	665	28,395	70,290
U6	12	7.9	6,794	81,525	324	2,556	84,080
U7	11	7.9	14,569	160,257	694	5,481	165,737

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self-Hauled
Final Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001
Del Mar(WM)	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000
Encinitas(EDCO)	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002
Escondido(EDCO)	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000
Oceanside(WM)	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001
Poway(EDCO)	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003
San Marcos(EDCO)	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001
Solana Beach(WM)	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001
Vista(EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003

Annual Transfer Station to Aspen Road Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(WM)	0.008	0.009	0.037	0.876	138.959	0.013	0.007	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.015	0.017	0.063	1.043	152.537	0.013	0.008	0.001
Del Mar(WM)	0.001	0.001	0.004	0.088	13.893	0.001	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.006	0.099	14.834	0.001	0.001	0.000
Encinitas(EDCO)	0.005	0.006	0.023	0.545	86.431	0.008	0.005	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.008	0.009	0.034	0.617	92.289	0.008	0.005	0.001
Escondido(EDCO)	0.007	0.008	0.033	0.763	121.064	0.011	0.006	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.013	0.014	0.055	0.907	132.800	0.011	0.007	0.001
Oceanside(WM)	0.007	0.008	0.032	0.756	119.920	0.011	0.006	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.013	0.014	0.054	0.900	131.638	0.011	0.007	0.001
Poway(EDCO)	0.003	0.003	0.014	0.335	53.167	0.005	0.003	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.006	0.006	0.024	0.398	58.321	0.005	0.003	0.001
San Marcos(EDCO)	0.004	0.005	0.021	0.486	77.080	0.007	0.004	0.001	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.008	0.009	0.035	0.578	84.552	0.007	0.004	0.001
Solana Beach(WM)	0.001	0.001	0.005	0.125	19.838	0.002	0.001	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.002	0.008	0.142	21.182	0.002	0.001	0.000
Vista(EDCO)	0.003	0.004	0.016	0.379	60.148	0.005	0.003	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.006	0.007	0.027	0.451	65.978	0.006	0.003	0.001

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self-Hauled
Final Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001
U2	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000
U3	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001
U4	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000
U5	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000
U6	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001
U7	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.001	0.001	0.003	0.069	11.007	0.001	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0012	0.0013	0.0050	0.0826	12.0830	0.0010	0.0006	0.0001
U2	0.000	0.000	0.001	0.017	2.772	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0006	0.0007	0.0024	0.0279	3.6253	0.0003	0.0002	0.0000
U3	0.002	0.003	0.011	0.267	42.270	0.004	0.002	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0044	0.0050	0.0191	0.3168	46.3671	0.0040	0.0023	0.0004
U4	0.003	0.004	0.014	0.338	53.632	0.005	0.003	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0046	0.0052	0.0202	0.3757	56.6881	0.0050	0.0029	0.0005
U5	0.003	0.004	0.015	0.350	55.430	0.005	0.003	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0047	0.0054	0.0209	0.3883	58.5883	0.0051	0.0030	0.0006
U6	0.000	0.000	0.001	0.031	4.989	0.000	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0010	0.0012	0.0042	0.0503	6.5256	0.0005	0.0003	0.0001
U7	0.001	0.001	0.003	0.067	10.699	0.001	0.001	0.000	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0022	0.0025	0.0091	0.1079	13.9937	0.0011	0.0006	0.0001

Gregory Canyon Landfill Draft EIS
Aspen Road VMT Emissions Calculation - Self-Hauled
Final Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.019	0.024	0.263	1.065	253.309	0.013	0.008	0.003
Del Mar (WM)	0.002	0.004	0.067	0.106	45.581	0.001	0.001	0.001
Encinitas (EDCO)	0.012	0.016	0.244	0.640	197.868	0.009	0.005	0.002
Escondido (EDCO)	0.014	0.017	0.124	0.915	167.638	0.012	0.007	0.002
Oceanside (WM)	0.015	0.019	0.178	0.914	193.755	0.012	0.007	0.002
Poway (EDCO)	0.013	0.019	0.383	0.438	238.638	0.006	0.004	0.003
San Marcos (EDCO)	0.011	0.014	0.167	0.592	151.095	0.008	0.005	0.002
Solana Beach (WM)	0.003	0.005	0.091	0.151	62.806	0.002	0.001	0.001
Vista (EDCO)	0.013	0.020	0.386	0.490	246.479	0.007	0.004	0.003
Unincorporated	0.027	0.037	0.595	1.299	447.044	0.017	0.010	0.006
Total	**0.129**	**0.173**	**2.499**	**7**	**2004**	**0.086**	**0.052**	**0.024**

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self-Hauled
Final Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to Gopher Canyon (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	13	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	29	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	22	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	17	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	15	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	29	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	10	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	28	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	5	Direct	84
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	33	Transfer	16
U2	1,887	6	12	1	13	25.5	Transfer	13
U3	9,058	30	59	3	62	20.3	Transfer	62
U4	6,756	22	44	2	46	34	Transfer	46
U5	6,982	23	45	2	48	14	Transfer	48
U6	3,397	11	22	1	23	19.4	Transfer	23
U7	7,284	24	47	2	50	6.1	Direct	47

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self-Hauled
Final Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	11.2	60,036	210,125	2,859	32,019	242,144
Del Mar (WM)	15.4	12.1	4,163	64,111	198	2,399	66,510
Encinitas (EDCO)	8.5	12.1	25,900	220,149	1,233	14,923	235,072
Escondido (EDCO)	1.4	16.6	51,888	72,643	2,471	41,016	113,659
Oceanside (WM)	2.5	11.2	51,810	129,525	2,467	27,632	157,157
Poway (EDCO)	16.5	16.6	22,787	375,990	1,085	18,013	394,003
San Marcos (EDCO)	4.2	16.6	33,036	138,752	1,573	26,114	164,866
Solana Beach (WM)	14.6	12.1	5,945	86,791	283	3,425	90,216
Vista (EDCO)	14.6	16.6	25,779	376,374	0	0	121,161
Unincorporated	See Below		75,486	709,001	2,901	68,157	705,771
Total			356,829		15,071		2,290,559
U1	21.5	11.2	4,756	102,246	226	2,536	104,782
U2	12.5	13.8	3,774	47,179	180	2,480	49,659
U3	11.5	16.6	18,117	208,341	863	14,321	222,662
U4	5	33.9	13,512	67,560	643	21,812	89,372
U5	3	33.9	13,965	41,895	665	22,543	64,438
U6	12	13.8	6,794	81,525	324	4,464	85,989
U7	11	13.8	14,569	160,257	0	0	88,870

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001
Del Mar(EWM)	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000
Encinitas (EDCO)	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002
Escondido(EDCO)	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000
Oceanside(EWM)	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001
Poway(EDCO)	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003
San Marcos(EDCO)	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001
Solana Beach(EWM)	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001
Vista(EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003

Annual Transfer Station to Gopher Canyon Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(EWM)	0.004	0.004	0.017	0.394	62.504	0.006	0.003	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.010	0.012	0.043	0.561	76.082	0.006	0.004	0.001
Del Mar(EWM)	0.000	0.000	0.001	0.030	4.682	0.000	0.000	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.003	0.041	5.624	0.000	0.000	0.000
Encinitas(EDCO)	0.002	0.002	0.008	0.184	29.131	0.003	0.002	0.000	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.005	0.005	0.019	0.256	34.989	0.003	0.002	0.000
Escondido(EDCO)	0.005	0.005	0.022	0.505	80.066	0.007	0.004	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.010	0.012	0.044	0.649	91.802	0.008	0.005	0.001
Oceanside(EWM)	0.003	0.004	0.014	0.340	53.940	0.005	0.003	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.009	0.010	0.037	0.484	65.658	0.005	0.003	0.001
Poway(EDCO)	0.002	0.002	0.009	0.222	35.162	0.003	0.002	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.005	0.005	0.019	0.285	40.316	0.003	0.002	0.000
San Marcos(EDCO)	0.003	0.003	0.014	0.321	50.977	0.005	0.003	0.000	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.007	0.007	0.028	0.413	58.449	0.005	0.003	0.001
Solana Beach(EWM)	0.000	0.000	0.002	0.042	6.686	0.001	0.000	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.001	0.001	0.004	0.059	8.031	0.001	0.000	0.000
Vista(EDCO)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self-Hauled
Final Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001
U2	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000
U3	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001
U4	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000
U5	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000
U6	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001
U7	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.000	0.000	0.001	0.031	4.951	0.000	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0008	0.0009	0.0034	0.0444	6.0267	0.0005	0.0003	0.0001
U2	0.000	0.000	0.001	0.031	4.842	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0007	0.0008	0.0029	0.0410	5.6953	0.0005	0.0003	0.0001
U3	0.002	0.002	0.008	0.176	27.955	0.003	0.001	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0036	0.0041	0.0153	0.2265	32.0527	0.0027	0.0016	0.0003
U4	0.002	0.003	0.011	0.268	42.579	0.004	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0039	0.0045	0.0172	0.3060	45.6351	0.0040	0.0023	0.0004
U5	0.003	0.003	0.012	0.277	44.006	0.004	0.002	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0041	0.0046	0.0178	0.3162	47.1648	0.0041	0.0024	0.0004
U6	0.001	0.001	0.002	0.055	8.715	0.001	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0012	0.0014	0.0053	0.0738	10.2515	0.0008	0.0005	0.0001
U7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gregory Canyon Landfill Draft EIS
Gopher Canyon VMT Emissions Calculation - Self-Hauled
Final Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.014	0.019	0.243	0.583	176.854	0.007	0.004	0.002
Del Mar (WM)	0.002	0.003	0.064	0.048	36.370	0.001	0.000	0.000
Encinitas (EDCO)	0.009	0.012	0.229	0.279	140.568	0.003	0.002	0.002
Escondido (EDCO)	0.012	0.014	0.113	0.656	126.640	0.008	0.005	0.001
Oceanside (WM)	0.011	0.014	0.160	0.497	127.775	0.006	0.003	0.002
Poway (EDCO)	0.012	0.018	0.378	0.325	220.633	0.004	0.003	0.003
San Marcos (EDCO)	0.009	0.012	0.160	0.428	124.992	0.005	0.003	0.002
Solana Beach (WM)	0.003	0.004	0.087	0.068	49.654	0.001	0.001	0.001
Vista (EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003
Unincorporated	0.025	0.034	0.585	1.066	409.993	0.014	0.009	0.005
Total	**0.103**	**0.143**	**2.379**	**4**	**1594**	**0.049**	**0.031**	**0.020**

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to Merriam Mountain (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	18	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	34	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	27	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	12	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	20	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	25	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	7	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	33	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	9	Direct	84
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	38.5	Transfer	16
U2	1,887	6	12	1	13	35.5	Transfer	13
U3	9,058	30	59	3	62	22.2	Transfer	62
U4	6,756	22	44	2	46	30	Transfer	46
U5	6,982	23	45	2	48	23.9	Transfer	48
U6	3,397	11	22	1	23	20.7	Transfer	23
U7	7,284	24	47	2	50	7.9	Direct	47

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	18.7	60,036	210,125	2,859	53,460	263,585
Del Mar (WM)	15.4	13.5	4,163	64,111	198	2,676	66,787
Encinitas (EDCO)	8.5	13.5	25,900	220,149	1,233	16,650	236,798
Escondido (EDCO)	1.4	13.1	51,888	72,643	2,471	32,368	105,011
Oceanside (WM)	2.5	18.7	51,810	129,525	2,467	46,135	175,660
Poway (EDCO)	16.5	13.1	22,787	375,990	1,085	14,215	390,205
San Marcos (EDCO)	4.2	13.1	33,036	138,752	1,573	20,608	159,360
Solana Beach (WM)	14.6	13.5	5,945	86,791	283	3,822	90,613
Vista (EDCO)	14.6	13.1	25,779	376,374	0	0	229,433
Unincorporated	See Below		75,486	709,001	2,901	59,549	723,387
Total			356,829		15,071		2,440,840
U1	21.5	18.7	4,756	102,246	226	4,235	106,480
U2	12.5	7.9	3,774	47,179	180	1,420	48,599
U3	11.5	13.1	18,117	208,341	863	11,301	219,642
U4	5	30.6	13,512	67,560	643	19,689	87,249
U5	3	30.6	13,965	41,895	665	20,349	62,243
U6	12	7.9	6,794	81,525	324	2,556	84,080
U7	11	7.9	14,569	160,257	0	0	115,093

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001
Del Mar(BWM)	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000
Encinitas(EDCO)	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002
Escondido(EDCO)	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000
Oceanside(BWM)	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001
Poway(EDCO)	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003
San Marcos(EDCO)	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001
Solana Beach(BWM)	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001
Vista(EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003

Annual Transfer Station to Merriam Mountain Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.006	0.007	0.028	0.658	104.359	0.009	0.005	0.001	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.013	0.014	0.054	0.825	117.937	0.010	0.006	0.001
Del Mar(BWM)	0.000	0.000	0.001	0.033	5.224	0.000	0.000	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.001	0.001	0.003	0.044	6.166	0.001	0.000	0.000
Encinitas(EDCO)	0.002	0.002	0.009	0.205	32.502	0.003	0.002	0.000	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.005	0.005	0.020	0.277	38.360	0.003	0.002	0.000
Escondido(EDCO)	0.004	0.004	0.017	0.398	63.185	0.006	0.003	0.001	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.009	0.011	0.039	0.542	74.921	0.006	0.004	0.001
Oceanside(BWM)	0.005	0.006	0.024	0.568	90.060	0.008	0.005	0.001	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.011	0.012	0.046	0.712	101.778	0.009	0.005	0.001
Poway(EDCO)	0.002	0.002	0.007	0.175	27.749	0.003	0.001	0.000	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.004	0.005	0.017	0.238	32.902	0.003	0.002	0.000
San Marcos(EDCO)	0.002	0.003	0.011	0.254	40.229	0.004	0.002	0.000	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.006	0.007	0.025	0.345	47.701	0.004	0.002	0.000
Solana Beach(BWM)	0.000	0.000	0.002	0.047	7.460	0.001	0.000	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.001	0.001	0.005	0.064	8.804	0.001	0.000	0.000
Vista(EDCO)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001
U2	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000
U3	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001
U4	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000
U5	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000
U6	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001
U7	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.000	0.001	0.002	0.052	8.267	0.001	0.000	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0010	0.0011	0.0043	0.0653	9.3422	0.0008	0.0005	0.0001
U2	0.000	0.000	0.001	0.017	2.772	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0006	0.0007	0.0024	0.0279	3.6253	0.0003	0.0002	0.0000
U3	0.001	0.001	0.006	0.139	22.061	0.002	0.001	0.000	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0033	0.0037	0.0137	0.1894	26.1585	0.0021	0.0013	0.0002
U4	0.002	0.003	0.010	0.242	38.434	0.003	0.002	0.000	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0037	0.0042	0.0161	0.2798	41.4903	0.0036	0.0021	0.0004
U5	0.002	0.003	0.011	0.250	39.723	0.004	0.002	0.000	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0038	0.0043	0.0167	0.2892	42.8810	0.0037	0.0022	0.0004
U6	0.000	0.000	0.001	0.031	4.989	0.000	0.000	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0010	0.0012	0.0042	0.0503	6.5256	0.0005	0.0003	0.0001
U7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gregory Canyon Landfill Draft EIS
Merriam Mountain VMT Emissions Calculation - Self-Hauled
Future Interim and Final Operational Years

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (WM)	0.017	0.021	0.254	0.847	218.709	0.010	0.006	0.003
Del Mar (WM)	0.002	0.003	0.064	0.051	36.912	0.001	0.000	0.000
Encinitas (EDCO)	0.009	0.013	0.230	0.300	143.939	0.004	0.002	0.002
Escondido (EDCO)	0.011	0.013	0.108	0.550	109.759	0.006	0.004	0.001
Oceanside (WM)	0.013	0.017	0.170	0.725	163.896	0.009	0.005	0.002
Poway (EDCO)	0.011	0.017	0.376	0.278	213.220	0.004	0.002	0.003
San Marcos (EDCO)	0.009	0.011	0.157	0.360	114.244	0.004	0.003	0.001
Solana Beach (WM)	0.003	0.004	0.087	0.073	50.428	0.001	0.001	0.001
Vista (EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003
Unincorporated	0.024	0.033	0.581	0.960	393.190	0.012	0.008	0.005
Total	**0.105**	**0.145**	**2.387**	**4**	**1625**	**0.051**	**0.032**	**0.021**

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self-Hauled
Final Operational Year

Truck Capacity Assumptions	Capacity (tons)	Vehicle Class
Transfer Truck	**21**	T7 Public
Medium Duty Truck	**1**	MDV

Daily Trip # Calculation

North San Diego County Jurisdiction	Annual Average Tons Self-Hauled (Extrapolated)	Daily Avg Tons	City-TS One-Way Trips/day	Transfer Truck One-Way Trips/day	If Transfer, Average Total One-Way Trips/day	Direct Distance to GCLF (mi)	Direct or Transfer?	Total One-Way Trips/day
Carlsbad (WM)	30,018	98	196	9	205	56	Transfer	205
Del Mar (WM)	2,082	7	14	1	14	42	Transfer	14
Encinitas (EDCO)	12,950	42	84	4	88	48	Transfer	88
Escondido (EDCO)	25,944	85	169	8	177	52	Transfer	177
Oceanside (WM)	25,905	84	169	8	177	59	Transfer	177
Poway (EDCO)	11,394	37	74	4	78	43	Transfer	78
San Marcos (EDCO)	16,518	54	108	5	113	56	Transfer	113
Solana Beach (WM)	2,972	10	19	1	20	43	Transfer	20
Vista (EDCO)	12,890	42	84	4	88	62	Transfer	88
Unincorporated	37,743	123	246	12	258	30	See Below	258
Total	178,415	581	1,162	55	1,218	See Below		
U1	2,378	8	15	1	16	78.6	Transfer	16
U2	1,887	6	12	1	13	87.1	Transfer	13
U3	9,058	30	59	3	62	48	Transfer	62
U4	6,756	22	44	2	46	50	Transfer	46
U5	6,982	23	45	2	48	75.6	Transfer	48
U6	3,397	11	22	1	23	62.3	Transfer	23
U7	7,284	24	47	2	50	60.9	Transfer	50

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self-Hauled
Final Operational Year

Daily and Annual VMT Calculation

North San Diego County Jurisdiction	Distance to Transfer Station	Distance from Transfer Station to LF	# City-TS One-Way trips/Yr	City-TS VMT/Yr	# TS-LF One-Way Trips/Yr	TS-LF VMT/Yr	Tonnage Annual VMT
Carlsbad (WM)	3.5	59.7	60,036	210,125	2,859	170,673	380,798
Del Mar (WM)	15.4	56.9	4,163	64,111	198	11,280	75,391
Encinitas (EDCO)	8.5	56.9	25,900	220,149	1,233	70,176	290,325
Escondido (EDCO)	1.4	51.8	51,888	72,643	2,471	127,990	200,632
Oceanside (WM)	2.5	59.7	51,810	129,525	2,467	147,288	276,813
Poway (EDCO)	16.5	51.8	22,787	375,990	1,085	56,209	432,198
San Marcos (EDCO)	4.2	51.8	33,036	138,752	1,573	81,489	220,241
Solana Beach (WM)	14.6	56.9	5,945	86,791	283	16,107	102,898
Vista (EDCO)	14.6	51.8	25,779	376,374	1,228	63,588	439,962
Unincorporated	See Below		75,486	709,001	3,595	217,770	926,771
Total			356,829		16,992		3,346,030
U1	21.5	59.7	4,756	102,246	226	13,520	115,765
U2	12.5	76.9	3,774	47,179	180	13,821	61,000
U3	11.5	51.8	18,117	208,341	863	44,688	253,029
U4	5	51.6	13,512	67,560	643	33,201	100,761
U5	3	51.6	13,965	41,895	665	34,314	76,208
U6	12	76.9	6,794	81,525	324	24,878	106,403
U7	11	76.9	14,569	160,257	694	53,349	213,606

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self-Hauled
Final Operational Year

Annual City-TS Haul Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.200	0.022	100.772	0.000	0.000	0.001
Del Mar(BWM)	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.061	0.007	30.746	0.000	0.000	0.000
Encinitas(EDCO)	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.210	0.023	105.579	0.001	0.000	0.002
Escondido(EDCO)	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.069	0.008	34.838	0.000	0.000	0.000
Oceanside(BWM)	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.004	0.124	0.014	62.117	0.000	0.000	0.001
Poway(EDCO)	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.317	0.001	0.001	0.003
San Marcos(EDCO)	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.132	0.015	66.543	0.000	0.000	0.001
Solana Beach(BWM)	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.083	0.009	41.623	0.000	0.000	0.001
Vista(EDCO)	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.007	0.012	0.359	0.040	180.501	0.001	0.001	0.003

Annual Transfer Station to East Otay Mesa Emissions

North San Diego County Jurisdiction	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad(BWM)	0.019	0.022	0.090	2.101	333.167	0.030	0.017	0.003	0.007	0.008	0.026	0.167	13.578	0.000	0.000	0.000	0.026	0.029	0.115	2.267	346.745	0.031	0.018	0.003
Del Mar(BWM)	0.001	0.001	0.006	0.139	22.019	0.002	0.001	0.000	0.000	0.001	0.002	0.012	0.942	0.000	0.000	0.000	0.002	0.002	0.008	0.150	22.961	0.002	0.001	0.000
Encinitas(EDCO)	0.008	0.009	0.037	0.864	136.989	0.012	0.007	0.001	0.003	0.003	0.011	0.072	5.858	0.000	0.000	0.000	0.011	0.012	0.048	0.936	142.847	0.013	0.007	0.001
Escondido(EDCO)	0.014	0.016	0.067	1.575	249.846	0.023	0.013	0.002	0.006	0.006	0.022	0.144	11.736	0.000	0.000	0.000	0.020	0.023	0.089	1.719	261.582	0.023	0.013	0.002
Oceanside(BWM)	0.017	0.019	0.077	1.813	287.518	0.026	0.015	0.003	0.006	0.006	0.022	0.144	11.718	0.000	0.000	0.000	0.022	0.025	0.099	1.957	299.236	0.026	0.015	0.003
Poway(EDCO)	0.006	0.007	0.029	0.692	109.724	0.010	0.006	0.001	0.003	0.003	0.010	0.063	5.154	0.000	0.000	0.000	0.009	0.010	0.039	0.755	114.877	0.010	0.006	0.001
San Marcos(EDCO)	0.009	0.010	0.043	1.003	159.074	0.014	0.008	0.002	0.004	0.004	0.014	0.092	7.472	0.000	0.000	0.000	0.013	0.015	0.057	1.095	166.545	0.015	0.009	0.002
Solana Beach(BWM)	0.002	0.002	0.008	0.198	31.442	0.003	0.002	0.000	0.001	0.001	0.003	0.016	1.345	0.000	0.000	0.000	0.002	0.003	0.011	0.215	32.787	0.003	0.002	0.000
Vista(EDCO)	0.007	0.008	0.033	0.783	124.129	0.011	0.007	0.001	0.003	0.003	0.011	0.072	5.831	0.000	0.000	0.000	0.010	0.011	0.044	0.854	129.960	0.011	0.007	0.001

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self-Hauled
Final Operational Year

Unincorporated Regions - Annual City-TF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.098	0.011	49.035	0.000	0.000	0.001
U2	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.045	0.005	22.626	0.000	0.000	0.000
U3	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.004	0.007	0.199	0.022	99.916	0.000	0.000	0.001
U4	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.002	0.064	0.007	32.400	0.000	0.000	0.000
U5	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.001	0.001	0.040	0.004	20.092	0.000	0.000	0.000
U6	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.003	0.078	0.009	39.098	0.000	0.000	0.001
U7	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.003	0.005	0.153	0.017	76.856	0.000	0.000	0.001

Unincorporated Regions - TF-LF Haul Emissions

	Running Emissions (tons/year)								Idle Emissions (tons/year)								Total Emissions (tons/year)							
	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
U1	0.002	0.002	0.007	0.166	26.391	0.002	0.001	0.000	0.001	0.001	0.002	0.013	1.076	0.000	0.000	0.000	0.0020	0.0023	0.0091	0.1796	27.4668	0.0024	0.0014	0.0003
U2	0.002	0.002	0.007	0.170	26.980	0.002	0.001	0.000	0.000	0.000	0.002	0.010	0.854	0.000	0.000	0.000	0.0020	0.0022	0.0089	0.1806	27.8335	0.0025	0.0014	0.0003
U3	0.005	0.006	0.023	0.550	87.234	0.008	0.005	0.001	0.002	0.002	0.008	0.050	4.097	0.000	0.000	0.000	0.0070	0.0080	0.0312	0.6003	91.3313	0.0080	0.0047	0.0009
U4	0.004	0.004	0.017	0.409	64.811	0.006	0.003	0.001	0.001	0.002	0.006	0.037	3.056	0.000	0.000	0.000	0.0052	0.0059	0.0232	0.4462	67.8667	0.0060	0.0035	0.0006
U5	0.004	0.004	0.018	0.422	66.983	0.006	0.004	0.001	0.002	0.002	0.006	0.039	3.158	0.000	0.000	0.000	0.0054	0.0061	0.0240	0.4611	70.1416	0.0062	0.0036	0.0007
U6	0.003	0.003	0.013	0.306	48.564	0.004	0.003	0.000	0.001	0.001	0.003	0.019	1.537	0.000	0.000	0.000	0.0035	0.0040	0.0160	0.3251	50.1003	0.0045	0.0026	0.0005
U7	0.006	0.007	0.028	0.657	104.142	0.009	0.005	0.001	0.002	0.002	0.006	0.040	3.295	0.000	0.000	0.000	0.0076	0.0086	0.0342	0.6971	107.4374	0.0096	0.0056	0.0010

Gregory Canyon Landfill Draft EIS
East Otay Mesa VMT Emissions Calculation - Self-Hauled
Final Operational Year

Annual Emissions by Jurisdiction (tons/year)

North San Diego County Jurisdiction	ROG	TOG	CO	NOX	CO2	PM10	PM2.5	SOX
Carlsbad (EWM)	0.030	0.036	0.316	2.290	447.517	0.031	0.018	0.005
Del Mar (EWM)	0.003	0.004	0.069	0.157	53.707	0.002	0.001	0.001
Encinitas (EDCO)	0.015	0.019	0.258	0.959	248.426	0.013	0.008	0.003
Escondido (EDCO)	0.021	0.025	0.159	1.727	296.420	0.023	0.014	0.003
Oceanside (EWM)	0.025	0.030	0.223	1.970	361.353	0.027	0.016	0.004
Poway (EDCO)	0.016	0.022	0.398	0.795	295.195	0.011	0.007	0.004
San Marcos (EDCO)	0.015	0.019	0.189	1.109	233.088	0.015	0.009	0.003
Solana Beach (EWM)	0.004	0.006	0.094	0.224	74.410	0.003	0.002	0.001
Vista (EDCO)	0.017	0.024	0.403	0.894	310.461	0.012	0.007	0.004
Unincorporated	0.036	0.047	0.636	2.251	597.907	0.031	0.018	0.007
Total	**0.182**	**0.233**	**2.744**	**12**	**2918**	**0.169**	**0.100**	**0.033**

Sycamore Canyon Alternative
Summary of Emissions from Master Development Plan Revised EIR (May 2012)

Source	Existing Landfill Emissions (Pounds per Day)						Existing Landfill Emissions (Tons per Day)					
	VOC	NOx	CO	SOx	PM10	PM2.5	VOC	NOx	CO	SOx	PM10	PM2.5
Gas-Fired Flare and Turbine[1]	31.3	336.5	1,058.0	24.4	55.3	55.3	5.7	61.4	193.1	4.5	10.1	10.1
On-road vehicle Exhaust[2]	11.5	31.1	63.3	0.2	4.8	4.2	1.8	18.3	9.9	0.0	0.7	0.7
Off-road Equipment Exhaust[3]	35.5	449.6	154.7	0.4	26.5	25.4	4.3	56.0	18.7	0.1	3.2	3.1
Fugitive Dust[4]	--	--	--	--	704.3	126.8	--	--	--	--	93.6	13.4
Total Emissions	78.3	817.2	1,276.0	25.0	790.9	211.7	11.8	135.7	221.6	4.5	107.6	27.2

Sources:

1. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-1 (ENVIRON 2012a).
2. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-10 (ENVIRON 2012a).
3. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-12 (ENVIRON 2012a).
4. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-14 (ENVIRON 2012a).

Source	Total Emissions (Pounds per Day)						Incremental Increase Over Existing Emissions (Pounds per Day)					
Years 2012-2014 (Initial Operations)	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Surface Landfill Gas[1]	84.2	--	6.5	--	--	--	84.2	--	6.5	--	--	--
Flare/Turbine Emissions[1]	37.6	405.3	1,274.0	29.4	66.6	66.6	6.3	68.8	216.0	5.0	11.3	11.3
On-Road Mobile Exhaust[2]	15.3	160.7	81.5	0.2	6.4	5.6	3.8	129.6	18.2	-	1.6	1.4
Off-Road Equipment Exhaust[3]	57.3	714.1	254.3	0.7	16.4	15.7	21.8	264.5	99.6	0.3	(10.1)	(9.7)
Fugitive Dust Emissions[4]	--	--	--	--	215.9	59.7	--	--	--	--	(488.4)	(67.1)
Maximum Daily Emissions	179.5	1,230.6	1,459.5	26.7	297.2	139.2	116.1	462.9	340.3	5.3	(485.6)	(64.1)
Years 2015-2019 (Near-Term Operations)	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Surface Landfill Gas[1]	135.2	--	10.4	--	--	--	135.2	--	10.4	--	--	--
Flare/Turbine Emissions[1]	60.4	642.0	2,017.0	47.2	106.6	106.6	29.1	305.5	959.0	22.8	51.3	51.3
On-Road Mobile Exhaust[2]	15.0	178.0	85.2	0.3	6.0	5.2	3.5	146.9	21.9	0.1	1.2	1.0
Off-Road Equipment Exhaust[3]	66.6	879.0	307.6	0.9	19.4	18.6	31.1	429.4	152.9	0.5	(7.1)	(6.8)
Fugitive Dust Emissions[4]	--	--	--	--	295.7	77.9	--	--	--	--	(408.6)	(48.9)
Maximum Daily Emissions	277.2	1,699.0	2,420.2	48.4	427.7	208.3	198.9	881.8	1,144.2	23.4	(363.2)	(3.4)
Years 2020-2024 (Interim Operations)	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Surface Landfill Gas[1]	186.0	--	14.3	--	--	--	186.0	--	14.3	--	--	--
Flare/Turbine Emissions[1]	83.1	685.6	2,134.0	64.9	139.1	139.1	51.8	349.1	1,076.0	40.5	83.8	83.8
On-Road Mobile Exhaust[2]	13.4	171.8	80.5	0.3	5.1	4.4	1.9	140.7	17.2	0.1	0.3	0.2
Off-Road Equipment Exhaust[3]	26.8	219.0	236.1	1.1	4.9	4.7	(8.7)	(230.6)	81.4	0.7	(21.6)	(20.7)
Fugitive Dust Emissions[4]	--	--	--	--	339.5	88.6	--	--	--	--	(364.8)	(38.2)
Maximum Daily Emissions	309.3	1,076.4	2,464.9	66.3	488.6	236.8	231.0	259.2	1,188.9	41.3	(302.3)	25.1
Years 2035-2042 (Future/Final Operations)	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Surface Landfill Gas[1]	367.1	--	28.3	--	--	--	367.1	--	28.3	--	--	--
Flare/Turbine Emissions[1]	164.0	841.3	2,551.0	128.1	255.4	255.4	132.7	504.8	1,493.0	103.7	200.1	200.1
On-Road Mobile Exhaust[2]	13.3	182.2	83.0	0.4	4.9	4.1	1.8	151.1	19.7	0.2	0.1	(0.1)
Off-Road Equipment Exhaust[3]	39.6	319.2	351.7	1.6	7.2	6.9	4.1	(130.4)	197.0	1.2	(19.3)	(18.5)
Fugitive Dust Emissions[4]	--	--	--	--	411.7	105.1	--	--	--	--	(292.6)	(21.7)
Maximum Daily Emissions	584.0	1,342.7	3,014.0	130.1	679.2	371.5	505.7	525.5	1,738.0	105.1	(111.7)	159.8
Years 2043-2044 (Closure)	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Surface Landfill Gas[1]	371.0	--	28.6	--	--	--	371.0	--	28.6	--	--	--
Flare/Turbine Emissions[1]	165.8	844.6	2,560.0	129.4	257.9	257.9	134.5	508.1	1,502.0	105.0	202.6	202.6
On-Road Mobile Exhaust[2]	0.2	0.0	0.9	0.0	0.0	0.0	(11.3)	(31.1)	(62.4)	(0.2)	(4.8)	(4.2)
Off-Road Equipment Exhaust[3]	4.2	10.6	37.7	0.2	0.5	0.5	(31.3)	(439.0)	(117.0)	(0.2)	(26.0)	(24.9)
Fugitive Dust Emissions[4]	--	--	--	--	98.7	46.1	--	--	--	--	(605.6)	(80.7)
Maximum Daily Emissions	541.2	855.2	2,627.2	129.6	357.1	304.5	462.9	38.0	1,351.2	104.6	(433.8)	92.8

Source	Total Emissions (Tons per Year)						Incremental Increase Over Existing Emissions (Tons per Year)					
Years 2012-2014 (Initial Operations)	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Surface Landfill Gas[1]	15.37	--	1.19	--	--	--	15.4	--	1.2	--	--	--
Flare/Turbine Emissions[1]	6.86	73.97	232.51	5.37	12.15	12.15	1.1	12.6	39.4	0.9	2.1	2.1
On-Road Mobile Exhaust[2]	2.79	28.85	14.65	0.03	1.15	1.02	1.0	10.5	4.8	0.0	0.4	0.4
Off-Road Equipment Exhaust[3]	8.40	101.40	36.40	0.10	2.40	2.30	4.1	45.4	17.7	0.0	(0.8)	(0.8)
Fugitive Dust Emissions[4]	--	--	--	--	30.50	5.00	--	--	--	--	(63.1)	(8.4)
Maximum Daily Emissions	33.42	204.21	284.74	5.50	46.20	20.47	21.6	68.5	63.1	1.0	(61.4)	(6.8)
Years 2015-2019 (Near-Term Operations)	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Surface Landfill Gas[1]	24.67	--	1.90	--	--	--	24.7	--	1.9	--	--	--
Flare/Turbine Emissions[1]	11.02	117.17	368.10	8.61	19.45	19.45	5.3	55.8	175.0	4.2	9.4	9.4
On-Road Mobile Exhaust[2]	2.70	32.00	15.31	0.05	1.08	0.93	0.9	13.7	5.5	0.0	0.3	0.3
Off-Road Equipment Exhaust[3]	10.00	128.40	45.20	0.14	2.90	2.80	5.7	72.4	26.5	0.1	(0.3)	(0.3)
Fugitive Dust Emissions[4]	--	--	--	--	42.00	6.70	--	--	--	--	(51.6)	(6.7)
Maximum Daily Emissions	48.40	277.56	430.51	8.80	65.44	29.88	36.6	141.8	208.9	4.3	(42.2)	2.6
Years 2020-2024 (Interim Operations)	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Surface Landfill Gas[1]	33.95	--	2.61	--	--	--	33.9	--	2.6	--	--	--
Flare/Turbine Emissions[1]	15.17	125.12	389.46	11.84	25.39	25.39	9.5	63.7	196.4	7.4	15.3	15.3
On-Road Mobile Exhaust[2]	2.40	30.96	14.44	0.05	0.92	0.77	0.6	12.6	4.6	0.0	0.2	0.1
Off-Road Equipment Exhaust[3]	4.10	29.90	36.90	0.17	0.71	0.68	(0.2)	(26.1)	18.2	0.1	(2.5)	(2.4)
Fugitive Dust Emissions[4]	--	--	--	--	47.90	7.60	--	--	--	--	(45.7)	(5.8)
Maximum Daily Emissions	55.61	185.99	443.40	12.07	74.91	34.44	43.8	50.3	221.8	7.5	(32.7)	7.2
Years 2035-2042 (Future/Final Operations)	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Surface Landfill Gas[1]	67.00	--	5.16	--	--	--	67.0	--	5.2	--	--	--
Flare/Turbine Emissions[1]	29.93	153.54	465.56	23.38	46.61	46.61	24.2	92.1	272.5	18.9	36.5	36.5
On-Road Mobile Exhaust[2]	2.41	32.82	14.97	0.07	0.88	0.73	0.6	14.5	5.1	0.0	0.1	0.1
Off-Road Equipment Exhaust[3]	5.60	41.60	49.90	0.23	0.97	0.93	1.3	(14.4)	31.2	0.2	(2.2)	(2.2)
Fugitive Dust Emissions[4]	--	--	--	--	71.50	16.30	--	--	--	--	(22.1)	2.9
Maximum Daily Emissions	104.94	227.96	535.59	23.68	119.96	64.57	93.1	92.2	314.0	19.1	12.3	37.3
Years 2043-2044 (Closure)	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Surface Landfill Gas[1]	67.71	--	5.22	--	--	--	67.7	--	5.2	--	--	--
Flare/Turbine Emissions[1]	30.26	154.14	467.20	23.62	47.07	47.07	24.5	92.7	274.1	19.2	37.0	37.0
On-Road Mobile Exhaust[2]	0.03	0.01	0.16	0.00	0.00	0.00	(1.8)	(18.3)	(9.7)	(0.0)	(0.7)	(0.6)
Off-Road Equipment Exhaust[3]	0.14	0.34	1.20	0.01	0.02	0.02	(4.2)	(55.7)	(17.5)	(0.1)	(3.2)	(3.1)
Fugitive Dust Emissions[4]	--	--	--	--	17.80	8.30	--	--	--	--	(75.8)	(5.1)
Maximum Daily Emissions	98.13	154.49	473.78	23.62	64.89	55.38	86.3	18.8	252.1	19.1	(42.7)	28.1

Sources:

1. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-15 (ENVIRON 2012a).
2. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-21 (ENVIRON 2012a).
3. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-23 (ENVIRON 2012a).
4. Sycamore Landfill Master Development Plan Revised EIR, Sycamore Landfill Air Quality Analysis, Table 6-25 (ENVIRON 2012a).

Gregory Canyon Landfill Draft EIS
SCAQMD Emissions

	Summary of SCAQMD Maximum Daily and Annual Operational Emissions – Year 1											
	(Pounds per Day)						(Tons per Year)					
Operational Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Equipment Exhaust												
Exhaust – Off-Road	1.1	27.6	4.1	0.0	0.6	0.6	1	21	3	0	0.0	0.0
Exhaust – On-Road[a]	0.6	28.4	2.5	0.0	0.3	0.2	0	3	0	0	0	0
Fugitive Emissions	0	0	0	0	103.89	20.6	0	0	0	0	4.6	1.0
Fugitive Dust – Operations	0	0	0	0	6.0	1.3	0	0	0	0	0.4	0.1
Fugitive Dust – Rock Processing	0	0	0	0	0	0	0	0	0	0	0	0
Fugitive Dust – Wind Erosion	0	0	0	0	59.8	9.0	0	0	0	0	0.3	0
Vehicle Travel – Paved Roads	0	0	0	0	1.4	0.6	0	0	0	0	0.1	0
Vehicle Travel – Unpaved Roads	0	0	0	0	36.703	9.7	0	0	0	0	3.8	0.9
Blasting/Drilling	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Emissions	**2**	**56**	**7**	**0**	**105**	**21**	**1**	**24**	**3**	**0**	**9**	**2**
Significance Threshold	75	250	550	250	100	55	13.7	40	100	40	15	10
Amount Over/(Under)	(73)	(194)	(543)	(250)	5	(34)	(13)	(16)	(97)	(40)	(6)	(8)

	Summary of SCAQMD Maximum Daily and Annual Operational Emissions – Year 10											
	(Pounds per Day)						(Tons per Year)					
Operational Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Equipment Exhaust												
Exhaust – Off-Road	9	217	32	0.0	5	5	1	21	3	0	0.0	0.0
Exhaust – On-Road[a]	12	264	63	1	2	2	1	26	6	0	0	0
Fugitive Emissions												
Fugitive Dust – Operations	0	0	0	0	47	10	0	0	0	0	3	1.0
Fugitive Dust – Wind Erosion	0	0	0	0	471	71	0	0	0	0	2	0.0
Vehicle Travel – Paved Roads	0	0	0	0	11	5.0	0	0	0	0	1.0	0.0
Vehicle Travel – Unpaved Roads	0	0	0	0	289	76	0	0	0	0	30	7
Flares	7	41	2	20	14	14	1	8	0	4	3	3
Landfill Gas	19	0	1	0	0	0	4	0	0	0	0	0
Maximum Emissions	**47**	**522**	**98**	**21**	**839**	**183**	**7**	**55**	**9**	**4**	**39**	**11**
Significance Threshold	75	250	550	250	100	55	13.7	40	100	40	15	10
Amount Over/(Under)	(28)	272	(452)	(229)	739	128	(6)	15	(91)	(36)	24	1

[a] *Includes exhaust emissions from both on- and off-site haul trucks.*

Source: PCR Services Corporation, 2012.

Summary of SCAQMD Maximum Daily and Annual Operational Emissions – Year 25												
	(Pounds per Day)						(Tons per Year)					
Operational Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Equipment Exhaust												
Exhaust – Off-Road	9	217	32	0.0	5	5	1	21	3	0	0.0	0.0
Exhaust – On-Road[a]	14	141	73	1	2	2	1	14	7	0	0	0
Fugitive Emissions												
Fugitive Dust – Operations	0	0	0	0	47	10	0	0	0	0	3	1.0
Fugitive Dust – Wind Erosion	0	0	0	0	471	71	0	0	0	0	2	0.0
Vehicle Travel – Paved Roads	0	0	0	0	11	5	0	0	0	0	1	0.0
Vehicle Travel – Unpaved Roads	0	0	0	0	289	76.0	0	0	0	0	30.0	7.0
Flares	7	41	2	20	14	14	1	8	0	4	3	3
Landfill Gas	19	0	1	0	0	0	4	0	0	0	0	0
Maximum Emissions	**49**	**399**	**108**	**21**	**839**	**183**	**7**	**43**	**10**	**4**	**39**	**11**
Significance Threshold	75	250	550	250	100	55	13.7	40	100	40	15	10
Amount Over/(Under)	(26)	149	(442)	(229)	739	128	(6)	3	(90)	(36)	24	1

[a] *Includes exhaust emissions from both on- and off-site haul trucks.*

Source: PCR Services Corporation, 2012.

	Summary of SCAQMD Maximum Daily and Annual Operational Emissions – Year 30											
	(Pounds per Day)						(Tons per Year)					
Operational Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Equipment Exhaust												
Exhaust – Off-Road	9	217	32	0.0	5	5	1	21	3	0	0.0	0.0
Exhaust – On-Road[a]	14	141	73	1	2	2	1	14	7	0	0	0
Fugitive Emissions												
Fugitive Dust – Operations	0	0	0	0	47	10	0	0	0	0	3	1.0
Fugitive Dust – Wind Erosion	0	0	0	0	471	71	0	0	0	0	2	0.0
Vehicle Travel – Paved Roads	0	0	0	0	11	5.0	0	0	0	0	1.0	0.0
Vehicle Travel – Unpaved Roads	0	0	0	0	289	76	0	0	0	0	30	7
Flares	7	41	2	20	14	14	1	8	0	4	3	3
Landfill Gas	19	0	1	0	0	0	4	0	0	0	0	0
Maximum Emissions	**49**	**399**	**108**	**21**	**839**	**183**	**7**	**43**	**10**	**4**	**39**	**11**
Significance Threshold	75	250	550	250	100	55	13.7	40	100	40	15	10
Amount Over/(Under)	(26)	149	(442)	(229)	739	128	(6)	3	(90)	(36)	24	1

[a] *Includes exhaust emissions from both on- and off-site haul trucks.*

Source: PCR Services Corporation, 2012.

VOLUME V – AIR QUALITY IMPACT ANALYSIS

OF THE PERMIT APPLICATION FOR

THE GREGORY CANYON LANDFILL

SUBMITTED BY

GREGORY CANYON LTD
249 South Highway 101, #377
Solana Beach, California 92075

SUBMITTED TO

SAN DIEGO AIR POLLUTION CONTROL DISTRICT
10124 Old Grove Road
San Diego, California 92131

February 2008

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ACRONYMS

AQIA	Air Quality Impact Analysis
BACT	Best Available Control Technology
CARB	California Air Resources Board
CCR	California Code of Regulations
CO	Carbon Monoxide
EPA	Environmental Protection Agency
GCL	Gregory Canyon, Ltd.
GCLF	Gregory Canyon Landfill
HRA	Health Risk Assessment
LFG	Landfill Gas
NAAQS	National Ambient Air Quality Standards
NO_x	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
PA	Permit Application
PCR	PCR Services Corporation
PM	Particulate Matter
PM_{10}	Particulate Matter Less Than 10 Microns in Diameter
ppm	Part per Million
SDAPCD	San Diego Air Pollution Control District
SO_x	Oxides of Sulfur
TAC	Toxic Air Contaminants
T-BACT	Toxic Best Available Control Technology

PREFACE

This report presents the air dispersion modeling and the ambient Air Quality Impact Analysis (AQIA) performed by PCR Services Corporation (PCR), on behalf of Gregory Canyon Ltd. (GCL). The purpose of this study is to predict the ambient air quality impact from construction and operation activities at the proposed Gregory Canyon Landfill (GCLF), in support of the initial air quality Permit Application (PA). This report is referred to as Volume V of the PA for GCLF and provides the following:

- AQIA Regulatory Requirements;
- Federal and State Ambient Air Quality Standards;
- Air Dispersion Modeling Parameters;
- Current Ambient Air Quality; and
- Projected Ambient Air Quality Impacts.

A description of proposed controls to be implemented as Best Available Control Technology (BACT)/Toxic Best Available Control Technology (T-BACT) at GCLF is presented in Volume II. A compilation of federal, state and local rules and regulations that will apply to GCLF and methods proposed to comply with them is presented in Volume III. Detailed information regarding the proposed design and operation of GCLF and quantification of air pollutant emissions can be found in Volume IV of the PA. Volume VI details the Health Risk Assessment (HRA) for this project.

EXECUTIVE SUMMARY

Gregory Canyon Ltd. (GCL) is proposing to build a municipal landfill, known as the Gregory Canyon Landfill (GCLF), on a 308 acre portion of a 1770 acre property, in San Diego County (see Figure 1-1). The GCLF project includes the construction, operation, and closure of the landfill. The project is described in detail in Proposition C and includes a lined landfill, an access road and bridge from SR 76 to the landfill, a scale area, a recyclable goods collection center, a facilities and operations area, two borrow/stockpile areas, a leachate collection and removal system, a water treatment plant, a visitors' center, an administration building, a maintenance office, a shop and yard, a fueling station/storage area, a water tank, a water supply well, groundwater monitoring wells, a landfill gas collection and control system and a groundwater subdrain collection system. GCLF is expected to receive a maximum of 1.525 million tons per year of Class III municipal solid waste, as described in Title 27 of the California Code of Regulations (CCR).

AQIA Requirements and Methodology

As part of an initial PA for the landfill, the applicant must demonstrate that the operation of the GCLF will not cause a negative impact on ambient air quality in the vicinity of the project. This report presents the air dispersion modeling conducted to demonstrate that operation of the GCLF will not result in an exceedance of a State and National ambient air quality standard. Several steps are required for modeling ambient air quality impacts at nearby receptors. These steps include identifying the type of sources and location of pollutant emissions, location of sensitive receptors, and modeling scenarios.

It was determined that an AQIA is necessary to evaluate air quality impacts for Carbon Monoxide (CO) and Nitrogen Dioxide (NO_2), based on hourly, daily, and annual emissions of those pollutants. The predominate source of these pollutants is from blasting during excavation and to a lesser extent flaring of landfill gases. Blasting locations and number of flares are expected to change throughout the operating life of the landfill. Therefore, several scenarios based on worst-case operating years were analyzed. Pollutant emission rates were determined in the Air Emissions Inventory Report, Volume IV of this PA.

Pollutant emissions were then input into a dispersion model to determine concentrations at nearby receptors. Dispersion modeling parameters followed guidelines recommended by the US Environmental Protection Agency (USEPA) and the San Diego Air Pollution Control District (SDAPCD). Two years of on-site meteorological data was provided for the model to determine

the worst-case scenario. Background pollutant concentrations from the closest monitoring stations were used to determine ambient air quality impacts.

Summary of the AQIA Dispersion Modeling

Dispersion modeling for worst-case operating years demonstrates CO and NO_2 emissions from landfill operations do not result in any ambient air quality impacts. The maximum 1-hour NO_2 concentration is predicted to be 0.23 part per million (ppm), which is the total of the projected background level of NO_2 and the incremental increase in ambient NO_2 predicted to occur from proposed landfill operation related NOx emissions. This peak 1-hour concentration is less than the most stringent applicable AAQS of 0.25 ppm. The maximum 1-hour CO concentration is predicted to be 19.7 ppm, less than the most stringent applicable AAQS of 20 ppm, and the 8-hour CO concentration is predicted to be 5.3 ppm, less than the most stringent applicable AAQS of 9.0 ppm.

This report presents the air dispersion modeling conducted towards demonstrating that operation of GCLF will not result in significant impacts to the environment. Section 1.0 of this document provides background information and a description of the project. Section 2.0 discusses the regulatory background for the AQIA. Section 3.0 discusses the methodology and assumptions behind the analysis. Model options and source parameters are also presented in Section 3.0. Section 4.0 presents the results of the analysis and provides a comparison to current ambient air quality in the vicinity of the proposed GCLF and the projected ambient air quality following commencement of GCLF operations. Conclusions from the AQIA are presented in Section 5.0.

1.0 INTRODUCTION

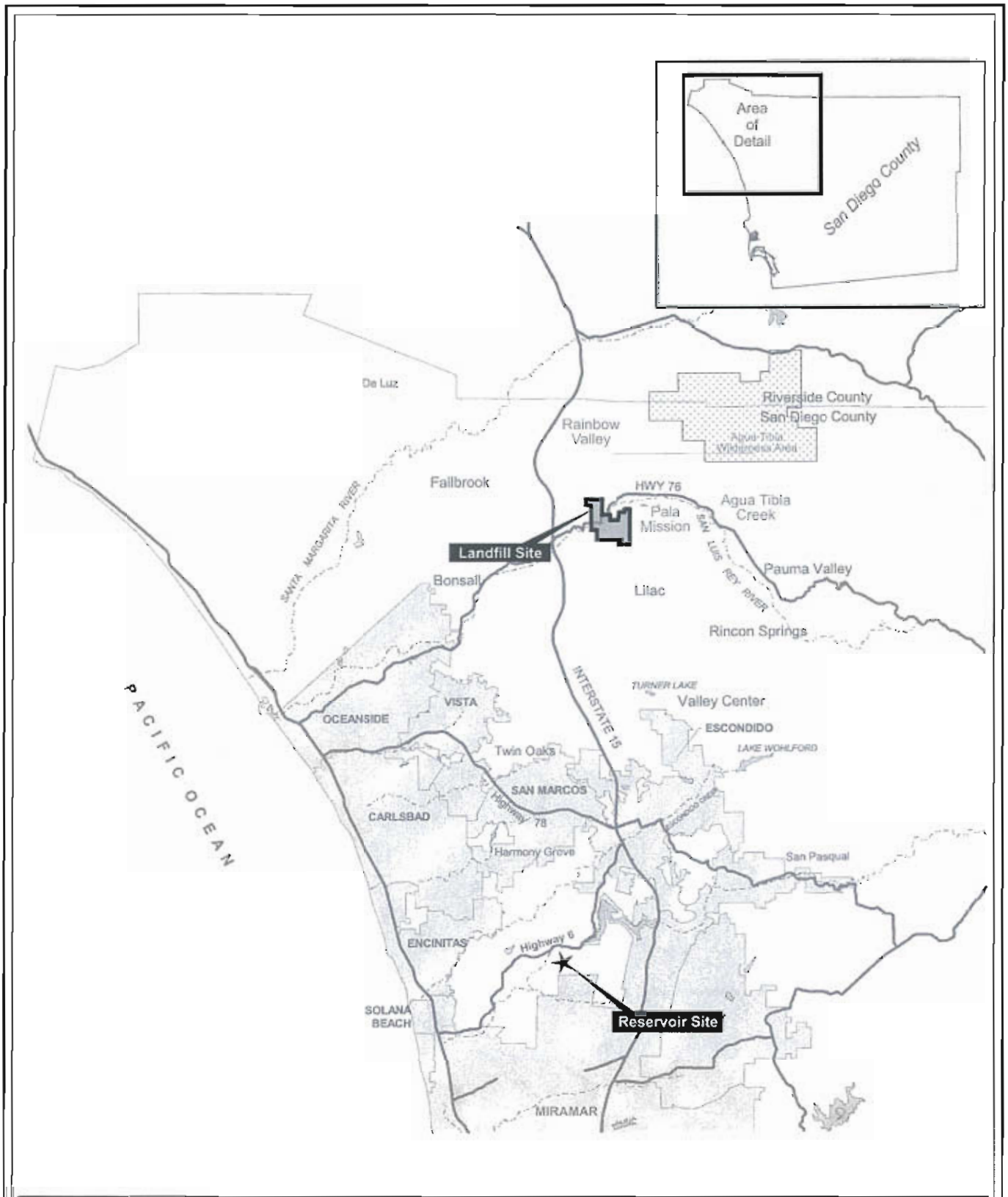
The proposed Gregory Canyon Landfill (GCLF) project will be constructed and operated as a municipal solid waste disposal facility to meet a portion of the total solid waste disposal needs of the San Diego County integrated waste management system. Air quality impacts from the construction and operation of the landfill will be permitted and regulated by the San Diego County Air Pollution Control District (SDAPCD), based in part on the results of this Air Quality Impact Analysis (AQIA) required under SDAPCD New Source Review (NSR) regulations.

This AQIA was prepared by PCR Services Corporation (PCR) on behalf of Gregory Canyon Ltd. (GCL) as part of the air quality permit application for GCLF. This document provides an analysis of air contaminant emissions from the project using air dispersion modeling, and evaluates air quality impacts that project emissions will have on State and National Ambient Air Quality Standards. The GCLF AQIA uses a regulatory-approved air dispersion model to ensure that potential impacts from the project satisfy the requirements of SDAPCD Rules 20.2 and 20.3.

An AQIA Protocol was prepared and submitted to the SDAPCD to provide District staff with an opportunity to review and comment on the approach and methodology that will be used to complete the dispersion modeling and air quality impacts analyses (SAIC, 2006a). SDAPCD comments on the submitted Protocol have been taken into consideration during the preparation of this AQIA (SDAPCD, 2006a). In addition, subsequent SDAPCD comments on the HRA Protocol have also been taken into consideration, where appropriate. (SDAPCD, 2006b)

1.1 Project Location and Surrounding Area

The GCLF will be located in northern San Diego County approximately three miles east of Interstate 15 (I-15) and two miles southwest of the community of Pala. State Route (SR) 76 and the San Luis Rey River run east-west through the project site. The majority of the project site lies to the south of SR 76 but part of the western portion of the site lies to the north of SR 76. Figure 1-1 shows the general location of the project site within San Diego County. The site comprises portions of Sections 4 and 5 of Township 10 South and Sections 32 and 33 of Township 9 South, Range 2 West of the United States Geological Survey (USGS) 7.5' Pala Quadrangle. The San Luis Rey River valley, and east towards Pala, is primarily used for horse breeding farms and pasture. Major portions of the valley west of the site are planted with groves.



PCR

NOT TO SCALE

Figure 1-1
Gregory Canyon Lanfill
Project Location

Source: SANDAG GIS Data, 1997 and David Evans and Associates, Inc.

1.2 Project Description

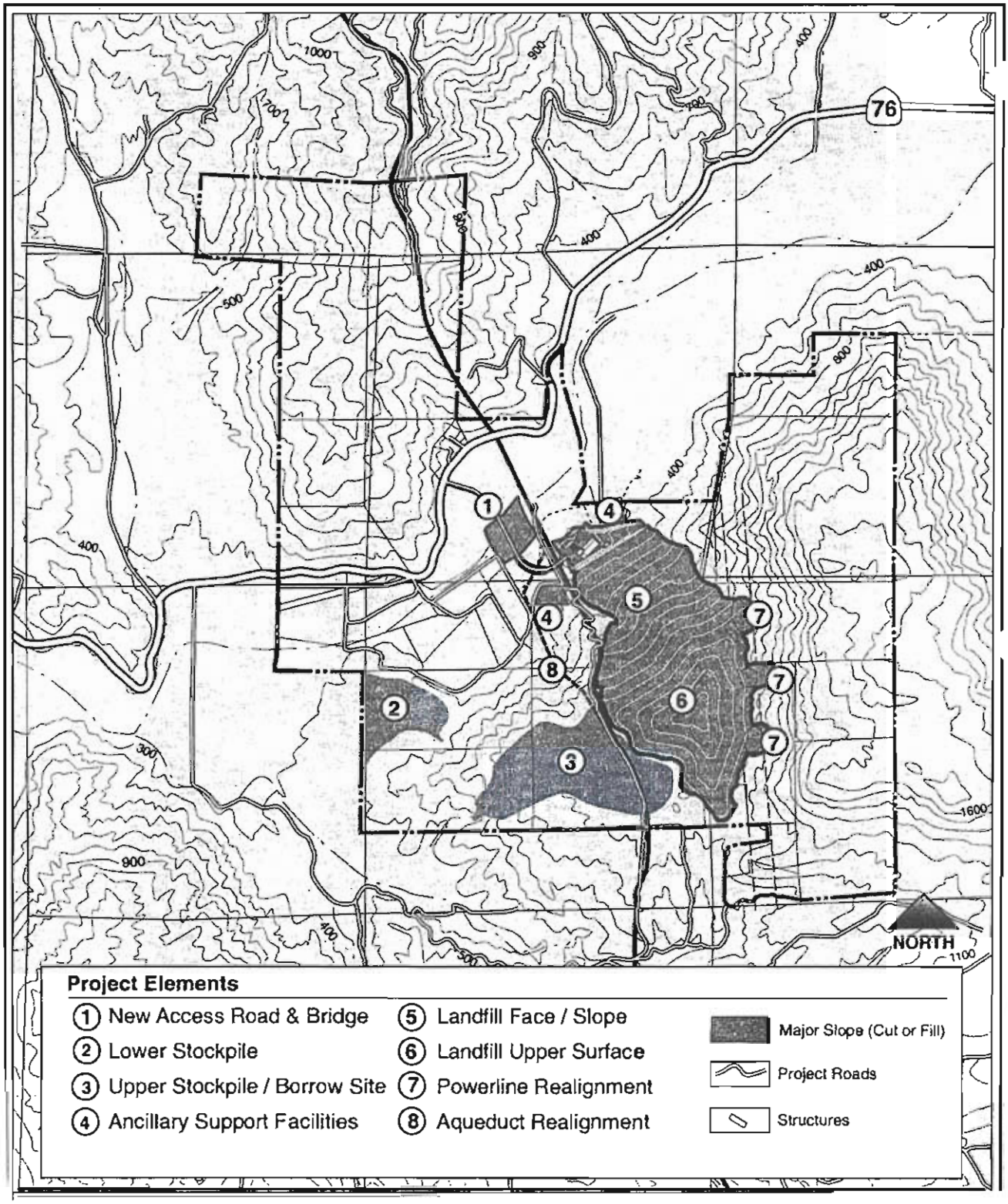
The proposed landfill will be a Class III municipal solid waste landfill, in accordance with Title 27 of the California Code of Regulations (27 CCR). As a Class III landfill, only non-hazardous solid wastes and inert wastes will be accepted. It will include approximately 196 acres for landfill operations, 106 acres of ancillary facilities, and approximately 1,313 acres committed as open space. The actual footprint for deposit of refuse is limited to approximately 183 acres. GCL, the permit applicant, currently owns the site. Figure 1-2 shows the proposed layout of the GCLF, access road and bridge, ancillary facilities area, refuse area footprint, property boundaries, and borrow/stockpile areas.

Operations at an active landfill are highly variable, depending primarily on waste acceptance volumes which can vary on a daily, seasonal, and annual basis. The GCLF is designed to accommodate approximately 34 million tons of refuse capacity. The landfill is permitted to receive a maximum of 5000 tons of waste per day, operating a total of 307 days per year. The AQIA is focused on potential impacts from pollutants with short-term (1-hour, 8-hour, or 24-hour) standards and long-term (annual) standards. As a conservative approach, the emissions used to assess both short- and long-term impacts were calculated based on the maximum daily waste acceptance rate.

Given this conservative basis, the landfill would accept trash for a minimum of 22 years, with two years of intensive construction prior to trash acceptance (referred to as Year -2, and Year -1), and 2 years of closure activities (Years 23 and 24). However, during the 22 years of operation, there will be years in which construction (e.g. excavation and preparation of the next cells) is expected to occur simultaneous with trash acceptance. Specifically, Years 1, 2, 3, 5, 8 and 22 involve waste acceptance and landfill construction. Closure activities will occur in Years 23 and 24 when the final cover soil will be transported from Stockpile A and used to cover the landfill. Extensive detail regarding the Project's specific construction activities and the proposed operations of the GCLF are presented in the Air Emissions Inventory Report, Volume IV of this Permit Application. Below are some excerpts of interest for reviewing the AQIA.

Landfill Construction

Waste acceptance at the landfill will start in Year 1 of the Landfill's life. Prior to the start of waste disposal/landfilling operations the construction of the first cells that will accept the refuse will occur over 24 months, in Years -2 and -1. The landfill waste disposal area will be constructed in phases with construction activities anticipated to occur in Years -2, -1, 1, 2 and 3 (see Figure 1-3). During the remaining years (i.e., Years 4 - 22), trash will be placed on top of filled cells, creating new cells; therefore, there will be no excavation/blasting within the landfill waste deposit area footprint during those years. In Year 5, a road internal to the landfill footprint



PCR

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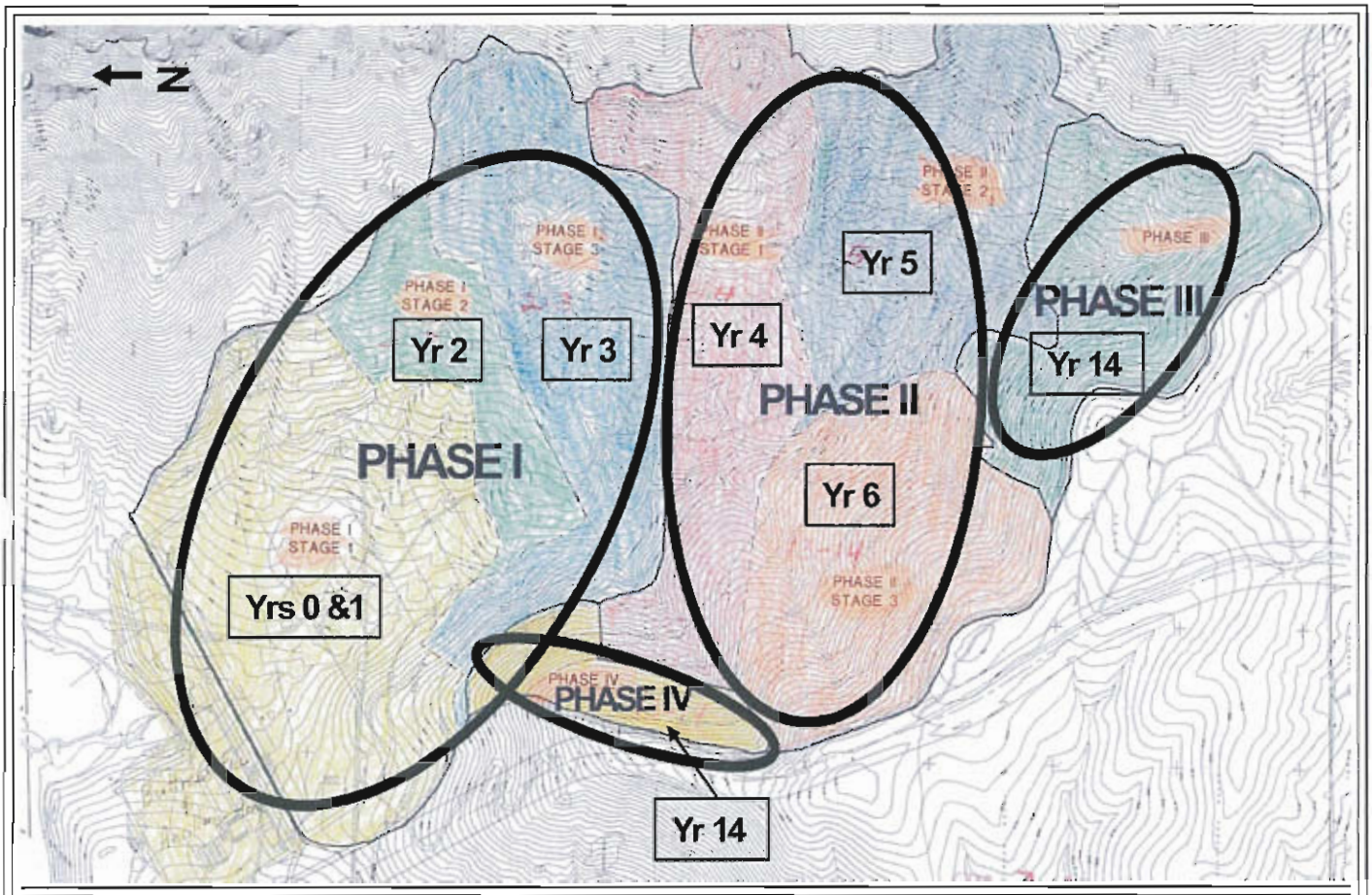
Figure 1-2
Proposed Layout of
Gregory Canyon Landfill

Source: Science Applications International Corporation, 2007



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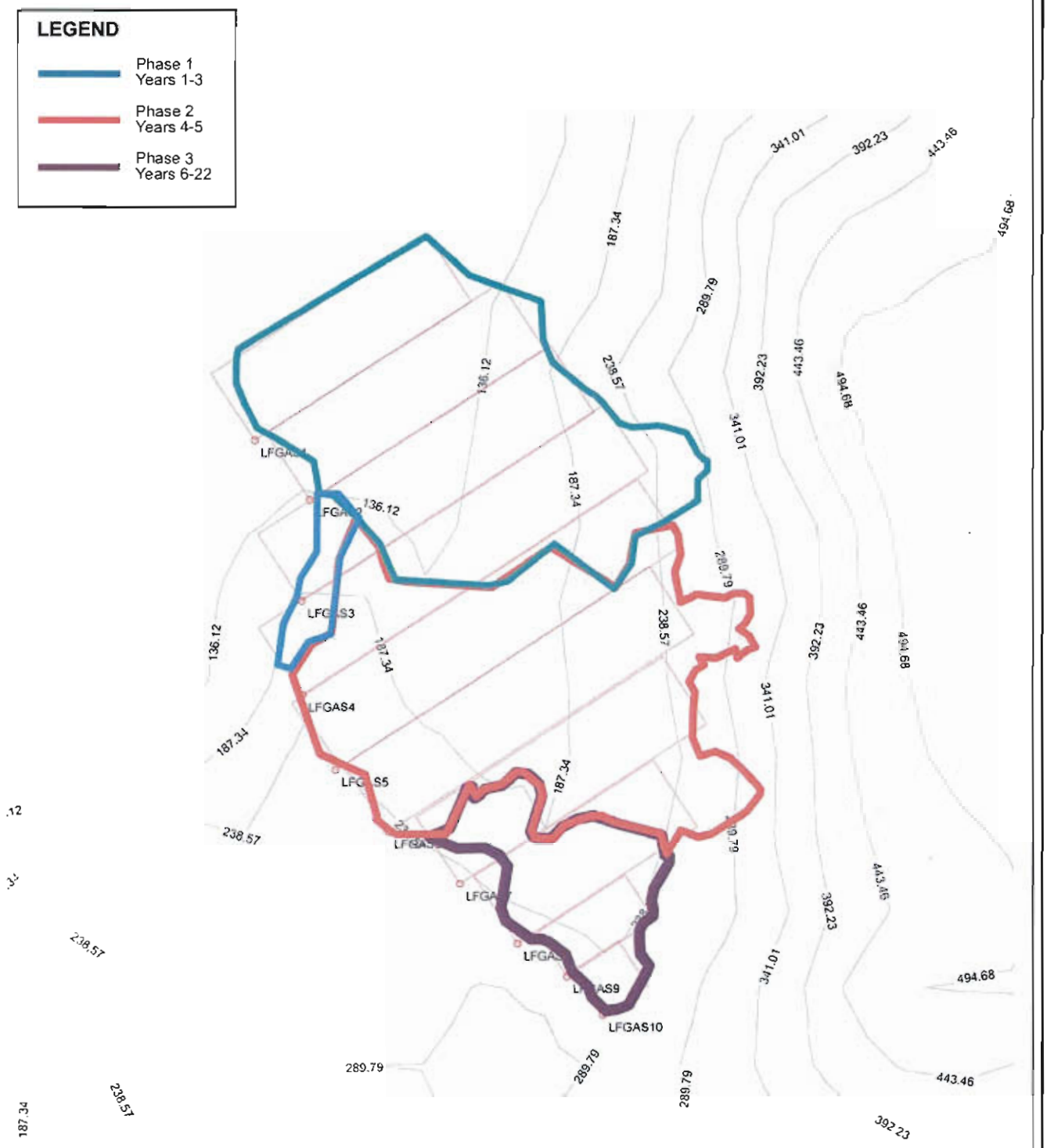
Source: Science Applications International Corporation, 2007

Figure 1-3
Landfill Construction Phases

PRELIMINARY WORKING DRAFT-Work-In-Progress



Source: Science Applications International Corporation, 2007

Figure 1-3
Landfill Operational Phases

will be constructed. In Years 8 and 22, excavation of Borrow Areas B and A, respectively, will occur. Construction activities that are expected to occur include excavation, filling, transport of soil and rock materials, and limited drilling and blasting in certain areas.

Landfill Operation

The GCLF will operate six days a week, Monday through Saturday, except holidays, for a total of 307 operating days per year. Solid waste landfill operations will occur 11 hours per operating day on weekdays and 9 hours per day on Saturdays. Regular operating hours for solid waste handling will occur Monday through Friday between 7:00 A.M. and 6 p.m. and on Saturday from 8:00 A.M. to 5 P.M. During Year -1 and Year -2, the operating schedule for initial construction is expected to be 10 hours per day. Landfill operations will consist of activities involved with the receipt, transport, and placement of waste, and management of gases and odors.

2.0 REGULATORY REQUIREMENTS

As discussed in Volume III of the PA for GCLF, any new source with project emissions that exceed AQIA trigger levels set in SDAPCD Rules 20.2 and 20.3, on a pollutant-by-pollutant basis, is required to demonstrate that a proposed project's impact will not result in any of the following:

- Cause a violation of a California or national ambient air quality standard (CAAQS and NAAQS, respectively) anywhere that does not already exceed such standard;
- Cause additional violations of a standard where the standard is already being exceeded;
- Prevent or interfere with the attainment or maintenance of a standard.

Conversely, a demonstration is not required for sources with project emissions that fall below the AQIA trigger level, on a pollutant-by-pollutant basis, because emission levels below triggers have been determined not to cause violations, additional violations, or prevent attainment.

2.1 AQIA Trigger Criteria and Applicability

A comprehensive air emissions inventory for the GCLF is provided in Volume IV of this Permit Application. The document contains hourly, daily, and annual air contaminant emission levels for the GCLF at various times throughout the project life.

The GCLF air contaminant emissions inventory for particulate matter less than 10 microns (PM_{10}), oxides of nitrogen (NOx), oxides of sulfur (SOx), carbon monoxide (CO), and lead and lead compounds was compared to the respective AQIA trigger levels identified in SDAPCD NSR rules. Project years for which worst-case pollutant emissions were determined are indicated in the table. These were determined based on different lifecycle milestones of the project (e.g., completion of construction phase). Estimates shown in Table 2-1 for hourly, daily, and annual pollutant emission rates are maximum emission rates based on the project design and may represent different emission inventory years. Emissions shown in bold indicate exceedance of the AQIA trigger for the pollutant and averaging time. Area fugitive sources of PM_{10} are generally exempted from AQIA requirements, as defined under Rule 20.1(d)(vi) and Rule 20.3(d)(2), and were not included in the AQIA determination.

Table 2-1

AQIA Trigger Levels and GCLF Emission Estimates

Air Contaminant	Criteria	Emission Rate		
		Pounds per Hour	Pounds per Day	Tons per Year
Particulate Matter (PM_{10})	AQIA Trigger Level	---	100	15
	GCLF Emissions	23[b]	23[b]	0.2[b]
Nitrogen Oxides (NOx)	AQIA Trigger Level	25	250	40
	GCLF Emissions	**136**[b]	155[c]	28[c]
Sulfur Oxides (SOx)	AQIA Trigger Level	25	250	40
	GCLF Emissions	16[a,b]	28[c]	5.1[c]
Carbon Monoxide (CO)	AQIA Trigger Level	100	550	100
	GCLF Emissions	**536**[a,b]	537[b]	9.5[b]
Lead and Lead Compounds	AQIA Trigger Level	---	3.2	0.6
	GCLF Emissions	4.14e-6[a,b]	2.40e-4 [a,b]	2.40e-4 [a,b]

[a] *Emissions shown are for Year -2 (see Appendix H).*
[b] *Emissions shown are for Year 2 (see Appendix H).*
[c] *Emissions shown are for Year 17 (see Appendix H).*

Note: ***Bold value*** *shows level exceeding AQIA triggers.*

Source: PCR Services Corporation, Volume IV of the GCLF PA, 2008.

As shown in Table 2-1, a comparison of the project's potential emissions and impact trigger levels shows that an AQIA is necessary to evaluate short-term air quality impacts for CO and NO_2, based on hourly and daily emissions of those pollutants. In addition, an AQIA demonstration is not required for SO_2, PM_{10}, or lead based on expected project emissions.

2.2 Ambient Air Quality Standards

The National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for the criteria pollutants included in the AQIA are listed in Table 2-2 below.

San Diego County is classified as in attainment of the State and National ambient air quality standards for NO_2 and CO. Based on the project emissions shown in Table 2-1 and SDAPCD NSR requirements of Rule 20.3, the AQIA will demonstrate that the GCLF project will not cause a violation of the CAAQS or NAAQS for NO_2 and CO. Since the California standards are the same or more stringent than the national standards for each pollutant and averaging time, the AQIA for permitting of the GCLF focuses on demonstrating compliance with the California standards.

Table 2-2

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8-hour	9 ppm (8 mg/m^3)	—
			—
Nitrogen Dioxide (NO_2)	1-hour	0.25 ppm (470 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)

Source: California Air Resources Board, November 10, 2006.

3.0 EMISSION SOUCE MODELING

Based on the regulatory applicability review table shown above, the emission sources that will be evaluated in the GCLF AQIA modeling analysis include combustion flares which will be used to control LFG emissions, blasting in support of excavation activities, and the landfill surface area, for CO emissions from fugitive LFG.

3.1 Air Dispersion Model

SDAPCD recommends use of EPA's most recent version of the AMS/EPA Regulatory Model (AERMOD) for purposes of the GCLF AQIA (SDAPCD, 2006). AERMOD was specially designed to support the EPA's regulatory modeling programs. AERMOD is currently the preferred air dispersion model of the EPA and is now being used for appropriate application as a replacement for Industrial Source Complex model (ISC3). As of December 9, 2006, AERMOD is fully promulgated as a replacement to ISC3 in accordance with Appendix W of the Federal Register 40 CFR Part 51. The model is used to assess pollutant concentrations at sensitive receptors from a wide variety of industrial type sources (point source and area sources).

3.2 General Modeling Methodology

Generally accepted modeling practices were used throughout the GCLF AQIA. These include the use of regulatory default settings, averaging times for pollutant standards, modeled emission rates, terrain considerations, and use of sequential hourly data. For AERMOD dispersion modeling, EPA regulatory default parameters were used with the exception of the ozone limiting method (OLM). Worst-case emission rates for all pollutants were also modeled. Modeling parameters have been developed for each construction and operational scheme. This section identifies the characterization of modeled releases and describes the basis for such characterizations. The following EPA regulatory default model option switches for the AERMOD were used:

- Stack-tip downwash
- No screening mode
- No by-pass date checking
- Complex Terrain

In addition to the EPA regulatory default parameters for AERMOD, the following options were enabled:

- NOx to NO_2 OLM using hourly ozone data from the Escondido monitoring station
- Rural dispersion coefficient
- No Building Downwash
- HROFDAY emission factors to account for hours of blasting
- USGS NAD27 topographic data with AERMAP terrain preprocessor
- Two years of on-site meteorological data.
- Receptors placed at edge of property boundary with 25 meter resolution

Although most of the above listed parameters and options would be considered EPA regulatory default, each will be discussed in further detail in this section.

Averaging Time Requirements

AERMOD was used to predict 1-hour ground-level concentrations for NO_2 and 1-hour and 8-hour ground-level concentrations for CO at defined receptor locations.

Modeled Emission Rates

A comprehensive air emissions inventory for the GCLF is provided in Volume IV of this Permit Application (PCR, 2008). The document contains hourly, daily, and annual air contaminant emission levels for the GCLF at various times throughout the project life. Table 3-1 presents emissions on a maximum daily and maximum hourly basis, respectively, for CO and NO_2, for sources contributing to the GCLF AQIA.

Meteorological Data

Air dispersion modeling was performed using two years of sequential hourly meteorological data collected at the landfill site. The proximity of the monitoring station to the proposed landfill activities provides a set of meteorological data that is representative of the local topographic features and wind regime than any other air quality stations in San Diego County. The establishment and operation of the monitoring station followed the *Gregory Canyon Landfill Air Quality Monitoring Plan* (SAIC, 2001), which was reviewed and approved by the SDAPCD.

Table 3-1

Summary of Emissions

Annual Emissions (tons/yr)							
	Blasting		Flare		Fugitive	Total	
Modeling Year	CO	NOx	CO	NOx	CO	CO	NOx
-2	9.2	2.3	---	---	---	9.2	2.3
2	9.2	2.3	0.18	3.55	0.13	9.5	5.9
17	---	---	1.41	28.28	1.07	2.49	28.28
Max Daily Emissions (lbs/day)							
	Blasting		Flare		Fugitive	Total	
Modeling Year	CO	NOx	CO	NOx	CO	CO	NOx
-2	536	136	---	---	---	536	136
2	536	136	0.11	2.16	0.74	537	138
17	---	---	7.7	155.0	5.89	13.6	155
Max Hourly Emissions (lbs/hr)							
	Blasting		Flare		Fugitive	Total	
Modeling Year	CO	NOx	CO	NOx	CO	CO	NOx
-2	536	136	---	---	---	536	136
2	536	136	0.01	0.09	0.03	536	136
17	---	---	0.32	6.46	0.25	0.57	6.46

Source: PCR Services Corporation, Volume IV of the GCLF PA, 2008.

The actual AERMOD meteorological data file used in the AQIA modeling (including surface and upper air measurements) was a synthesis of the surface data collected at the onsite monitoring station and the upper air data from NWS Station No. 93107. The two-year meteorological data set consists of onsite surface data, NWS upper air data, and boundary layer parameters representative of the GCLF. For further explanation on the construction of AERMOD meteorological dataset, please refer to the *Gregory Canyon Landfill Meteorological Data Report* (SAIC, 2004) submitted to the SDAPCD in July 2004.

Ozone Limiting Method

The OLM algorithm within the AERMOD dispersion model was used for calculating the NO_X to NO_2 conversion. This algorithm allows AERMOD to more accurately calculate the conversion of NO_X to NO_2 using ambient ozone concentrations. Ambient hourly ozone concentrations for modeling years 2002 and 2003 were obtained from the California Air Resources Board (CARB) website for the Escondido – East Valley Parkway monitoring station.

Terrain Considerations

Elevations on the project site range from approximately 1,200 feet above mean sea level (amsl) at the head of the canyon to the south, to 300 feet amsl at the mouth of the canyon in the San Luis Rey River drainage. Much of the canyon is steep, rugged terrain containing numerous boulder outcrops on the eastern side flattening out somewhat at the mouth of the canyon where it meets the alluvial deposits of the San Luis Rey River drainage. The project site is located between the Pala and Bonsall USGS 7.5-minute series topographic quadrangles. Because the project site is located in the upper portion of the Pala and Bonsall quadrangles, some modeling grids extend to neighboring USGS topographic quadrangles of Temecula and Pechanga. Figure 3-1 shows the Gregory Canyon project site in relation to USGS 7.5-minute series topographic quadrangles.

Elevations were included in the AERMOD dispersion analysis for all modeled receptors. A Digital Elevation Model (DEM) file contains geo-referenced elevation data, typically available by USGS quadrangle. Elevation data from DEM files was obtained for receptors located in these USGS topographic quadrangles. The USEPA AERMOD model was designed to handle all types of terrain, from flat to complex.

The AERMOD model includes terrain algorithms that calculate ground-level concentration for receptors located in terrain above and below the final plume height. In previous dispersion models (ISC3), a distinction needed to be made between elevated simple terrain and complex terrain. However, AERMOD does not have this distinction and the AERMOD terrain algorithm provides a continuous treatment of terrain influences across the stack height demarcation.

To model complex terrain, AERMOD requires additional information about the surrounding terrain. This information includes a height scale and a base elevation for each receptor. To obtain a height scale and the base elevation for a receptor, the elevation data provided by USGS DEM files were needed to be preprocessed using the U.S. EPA terrain preprocessor AERMAP (AMS/EPA Regulatory Model Terrain Pre-processor). The individual receptors' elevations are derived from USGS 7.5' topographic quadrangles (NAD27) by processing the DEM files with AERMAP.

Building Downwash

The only emission units that may be subject to building downwash are the landfill gas system flares. These emission units will have a thermally buoyant discharge and are located well within the project property limits. No buildings will be constructed near the flares. As such, building downwash was not considered in the AQIA.

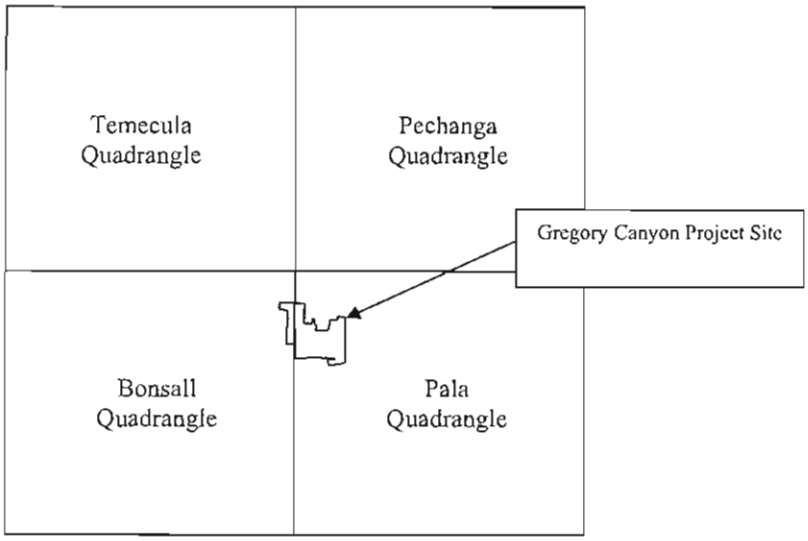


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Figure 3-2
Gregory Canyon Project Site and
Neighboring USGS Topographic Quadrangles

Source: Science Applications International Corporation, 2007

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Modeling Emission Factors

Emissions sources, such as flares or the landfill surface, which are continuous and have 24-hour emissions independent of winds or hours of the day, were not corrected for hour of day (HROFDAY). However, blasting emissions were modeled using HROFDAY instructions in the AERMOD input files since this source would operate only during certain hours of the day (i.e., there will be limitations as to when the site is allowed to conduct blasting).

Source Groups

Emission sources were grouped for the purpose of calculating impacts consistent with the source category designation detailed in the next section of this AQIA. Modeled results show aggregated impacts for source groups containing more than one emission source. For example, emissions from the three flares were grouped together to aggregate impacts from flare operations.

3.3 Emission Source Descriptions and Modeling

Modeling release parameters for emission sources at the GCLF were developed using the available guidance documents and accepted modeling practices. This section identifies the characterization of modeled releases and describes the basis for such characterizations. A brief description of the modeled emissions sources subject to the GCLF AQIA is provided below.

- Blasting activities were modeled as a surface-based area source with a release height of zero and no initial vertical dimension
- Fugitive landfill gas was modeled as a series of contiguous surface-based area sources with a release height of zero and no initial vertical dimension
- Flare(s) were modeled as a stationary source with a release height of 40 feet, a stack inside diameter of 8.6 feet, a stack exit velocity of 33.4 feet per second, and gas exit temperature of 1,600 °F.

Blasting

Blasting will be required during certain phases of the landfill construction to loosen some of the harder deposits within the landfill footprint. Emissions of CO and NO_x from the detonation of ammonium nitrate fuel oil (ANFO), the explosive material that will be used for blasting, is the primary contributor to triggering both the CO and NO_2 AQIA requirement for the GCLF project. Because blasting operations contribute well over 95 percent of the mass emission release on a short-term, hourly basis, characterization of this emission source is one of the most

Table 3-2

Area Size and Amount of ANFO

Amount of ANFO (tons)	Area Size Blasted (Acres)	Emissions (lbs/blast)	
		CO	NOx
1	1/16	67	17
2	1/8	134	34
4	1/4	268	68
6	3/8	402	102
8	1/2	536	136

Source: PCR Services Corporation, Volume IV of the PA, 2008.

important aspects of the AQIA. Further, because blasting operations will occur at various locations on the landfill footprint, but only during periods of landfill construction, modeling this particular emission source must consider a combination of spatial and source strength (mass emission) parameters to determine the allowable area of blasting in a given area.

Source Strength Considerations

The quantity of air pollutant emissions released during a blast is directly proportional to the mass of ANFO detonated. The quantity of ANFO to be used per blast will vary depending on the size of the area to be blasted and its location within the landfill footprint. In most cases, holes will be drilled to a depth of up to 30 feet at set distances from each other and ANFO will be added to a pre-selected number of the drilled holes. The other drilled holes will be used to weaken the areas of rock surrounding the charged holes and to help expand the effects of the explosives sideways into the surrounding hard materials. Once the rock is loosened, scrapers and bulldozers will be used to move the materials.

The allowable amount of ANFO to be used at GCLF was determined based on modeling results to ensure that ambient air quality standards are not exceeded. Impacts from a range of ANFO quantities (1 to 8 tons) were modeled at the various construction stages of the landfill. For years with construction close to the fenceline (Year -2), the blast size was limited to smaller blasts in some cases (e.g., 1/8 to 1/16 of an acre) and increased in size where pollutant concentrations would be less than the ambient air quality standard. For the remaining years, the distance to the nearest fenceline will increase (See Figure 1-3), so the modeling analysis started with a ½-acre per blast area and adjusted to smaller detonations if required in any cases where exceedances of the Standards were predicted. For Year -2, the year of the peak emissions, as shown in Table 3-1 the emissions were calculated for detonating 8-tons of AFNO, covering a ½-acre area. Table 3-2 shows the projected amount of ANFO required to blast surface area of various sizes.

Frequency

The frequency of blasting activities is also important in determining potential air quality impacts. No more than one blast will occur in any single day and only between the hours of 11 A.M. to 5 P.M. Thus, for calculating the maximum 1-hour pollutant concentrations it was assumed that blasting activities could occur during any hour from 11 A.M. to 5 P.M.

For purposes of modeling the maximum 8-hour concentration, no more than one blast per day was considered. As blasting activities could occur during a six hour period, the second scenario considered a scalar of 0.16 for each of the six hours. This scenario accounts for the temporal nature of the modeled source.

Flares

Flares will be installed as part of the LFG collection system to burn landfill gas produced by the municipal solid waste undergoing anaerobic decomposition. The gas collection system and flare station will commence operation at least one year after the start of waste acceptance at the landfill, after appreciable quantities of gas are being generated and the NSPS threshold levels are triggered. Typically, a landfill gas collection and control system needs to be installed after 1,000,000 tons of trash has been accepted and deposited into the landfill. Initially, one flare will be installed in Year 1 and will become operational in Year 2. An additional flare will be added in Years 5, 9, 11, 15, and 19 to handle the increase in LFG generation. A total of seven flares will be operational in Year 19.

Maximum CO and NO_x emissions from LFG were modeled using Year 17. Year 2 is the last year any substantial blasting is expected to occur at the GCLF. Therefore, these years were also modeled in the AQIA. The AERMOD User's Guide describes a calculation methodology intended to effectively model the buoyancy flux in open flares, this practice is not recommended for enclosed flares such as those proposed for the GCLF. State guidance for enclosed vapor combustion flares recommends the use of stack parameters that reflect the physical characteristics of the unit (TCEQ, 1999). Therefore, this approach was used to determine stack release parameters for the GCLF flares and the flares were modeled as stationary sources within AERMOD.

Fugitive Landfill Gas

Carbon monoxide gas is generated in the landfill from the decomposition of wastes within the landfill, and these emissions will increase steadily as waste is accepted. Any LFG which is not captured and controlled using the flares is assumed to escape as fugitive gas through the landfill surface. As shown in Table 3-1, fugitive landfill gas contributes to the total peak CO emissions for the GCLF and was included in the GCLF AQIA for CO.

The surface of the landfill is an irregular area and therefore was modeled as individual area sources represented as rectangles with aspect ratios (length/width) of up to 10 to 1, as shown in Figure 3-2.

Dividing the area into multiple area sources can simulate the effects of an irregularly shaped area, with the size and shape of the individual area sources varying based on the actual landfill shape. In addition, the rectangles were rotated relative to a north-south and east-west orientation. The ten landfill area sources will phase in over time as the landfill is developed and waste is deposited. Moreover, as shown in Figure 1-3 only a portion of the landfill would have been constructed by Year 2, which corresponds to Area Sources 1 through 4 of the landfill area sources shown in Figure 3-2. The remaining Area Sources 5 through 10 will not become active until later in the life of the GCLF.

Table 3-3 presents the characteristics for each of the 10 area sources. The table shows elevation data as it exists with the current terrain conditions. Because fill operations will affect the landfill surface elevation over time, these elevations will be refined in "out" years based on the GCLF Fill Plan.

Receptor Configuration

Receptors were referenced in the air dispersion modeling using Universal Transverse Mercator (UTM) coordinates. Coordinate data was obtained from USGS digital data in a method similar to terrain data described in Section above. The modeling included a combination of Cartesian grid and discrete receptors. Receptors were placed around the property boundary using a fine grid sufficiently dense to identify the maximum impact. A 50-meter grid was provided along the property boundary. A 100-meter grid was provided extending out to 500-meters, followed by a 250-meter grid to 1 kilometer and a 500-meter grid for any receptor grid that extends beyond 1 kilometer.

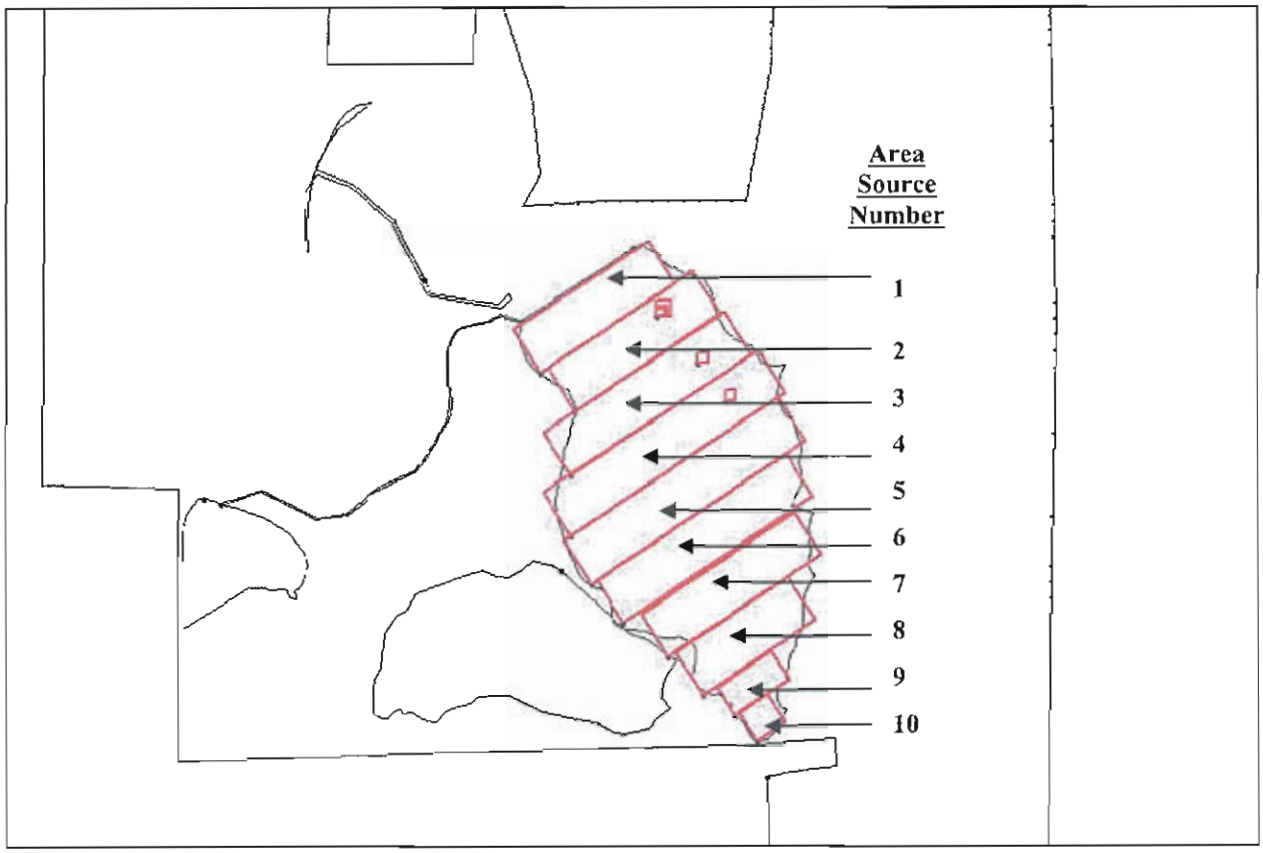

Figure 3-3
Modeling Representation of
Landfill Surface

Source: Science Applications International Corporation, 2007

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Table 3-3

Modeling Representation of Landfill Source

Source ID	East (m)	North (m)	Elevation (m)	Release Height (m)	X-Dimension of Area (m)	Y-Dimension of Area (m)	Angle (deg.)
LFGAS1	489763	3689104	157.8	0	480	150	-33
LFGAS2	489866	3688992	192	0	520	150	-33
LFGAS3	489851	3688802	222.9	0	650	150	-33
LFGAS4	489852	3688626	258.6	0	770	150	-33
LFGAS5	489914	3688485	277.5	0	770	150	-33
LFGAS6	490012	3688369	280.1	0	680	150	-33
LFGAS7	490145	3688271	296.1	0	550	150	-33
LFGAS8	490253	3688159	288.9	0	400	150	-33
LFGAS9	490346	3688097	290.2	0	195	100	-33
LFGAS10	490413	3688025	284.4	0	100	100	-33

Source: PCR Services Corporation, 2007.

4.0 AMBIENT AIR QUALITY IMPACT ANALYSIS

The ambient air quality impact analysis was performed by adding the projected ground level concentration increase due to the proposed GCLF to the local background concentration, and then comparing it to the applicable ambient air quality standards.

4.1 Ambient Air Monitoring Data

On-site air quality data for CO and NO_2 are not available at the GCLF site. Ambient air pollutant concentrations in the SDAB are measured at 10 air quality monitoring stations operated by SDAPCD. The most representative SDAPCD air quality monitoring station, for the purposes of this project, is located in Escondido. The East Valley Parkway air quality monitoring station located in Escondido is 16 miles south of the site and is located at 600 East Valley Parkway, Escondido. This station monitors ozone, CO, PM_{10}, $PM_{2.5}$ and NO_2. The Escondido monitoring station collects ambient air data for the applicable CO and NO_2 standards. In addition, ozone (O_3) monitoring data from this monitoring station was used to calculate NO_2 concentrations using OLM. Table 4-1 presents a summary of the highest pollutant concentrations recorded at this station for NO_2 and CO over the past three years – 2005 through 2007. The highest concentration over the past three years was used as background value in the analysis.

4.2 Projected Ambient Air Quality Impacts

The maximum ground level concentrations were modeled for each pollutant by entering the appropriate emission rate for each source into the AERMOD dispersion model. The emission rates were based on pollutant levels identified in Table 3-1, and Volume IV of this PA. As discussed in Section 3.3 above, for comparison with CO and NO_2 air quality standards with 1-hour averaging times, the maximum hourly emission rate was used. For comparison to the 8-hour CO standards, the maximum daily emission rate was used. Details of model inputs are available in Appendix A. The locations of the maximum concentrations are shown in Figure 4-1.

The maximum 1-hour off-site NO_2 concentration is predicted to be 0.23 ppm, which is the total of the projected background level of NO_2 and the incremental increase in ambient NO_2 predicted to occur from proposed landfill-related NOx emissions. This peak 1-hour concentration is predicted to occur in Year -2 of the operational life of the landfill, using the 2003 meteorological data set. All other operational years are predicted to result in lower ambient concentrations of NO_2, as shown on Table 4-2. This maximum concentration is less than the most stringent applicable AAQS of 0.25 ppm. The locations of the maximum impacts are shown in Figure 4-1.

Table 4-1

Ambient Air Quality

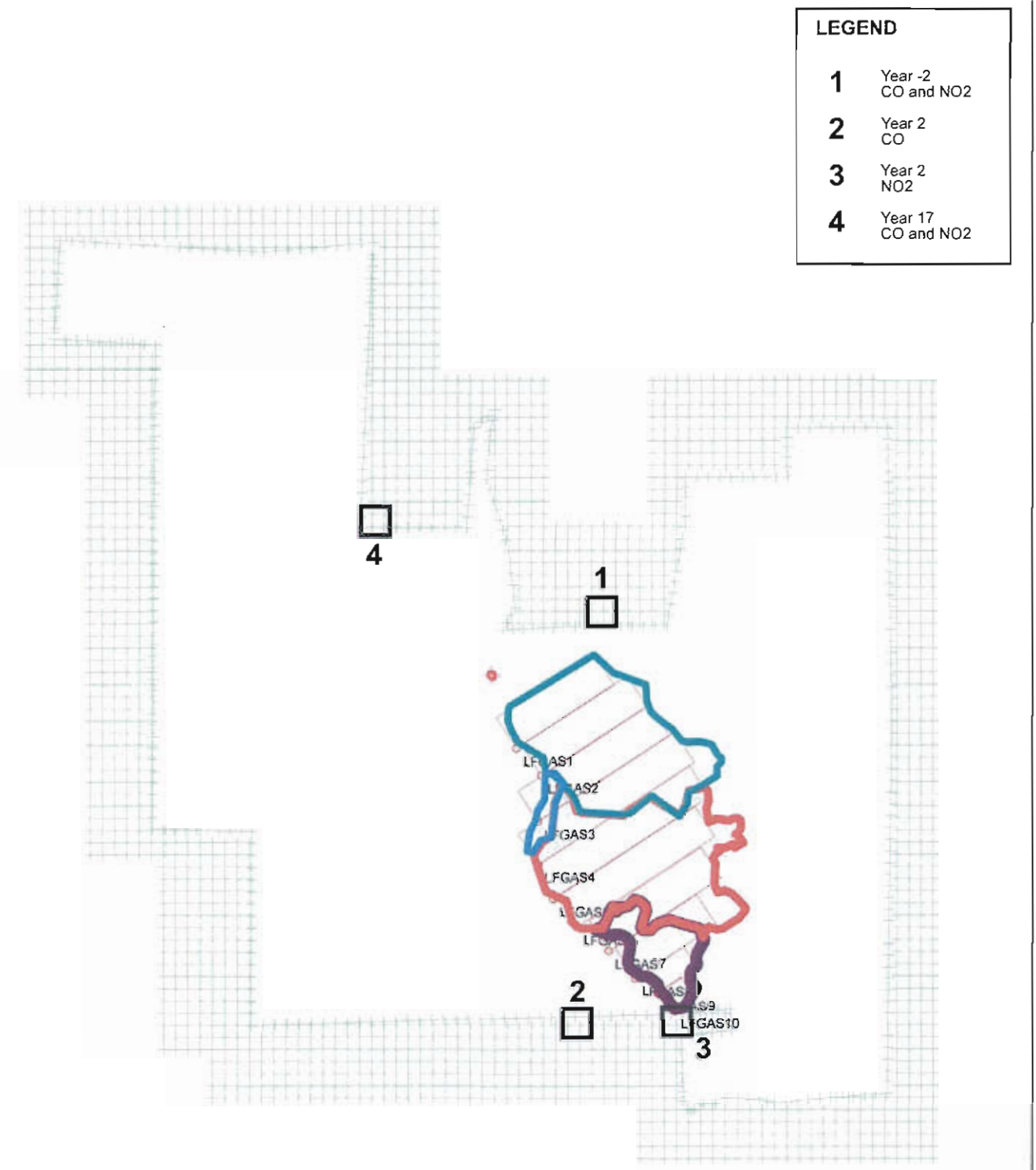
Pollutant	Averaging Time	CAAQS	NAAQS	Maximum Concentration 2005	2006	2007
NO_2 (ppm)	1-hour	0.25	none	0.076	0.071	0.072
CO (ppm)	1-hour	20	35	5.9	5.7	5.2
	8-hour	9	9	3.1	3.6	3.0

Source: California Air Resource Board, Ambient Air Data Summaries, 2004-2007.

The maximum 1-hour off-site CO concentration is predicted to be 19.7 ppm including background levels, less than the most stringent applicable AAQS of 20 ppm. This maximum is predicted to occur in Year -2 of the operational life of the landfill, using the 2003 meteorological data set.

The maximum 8-hour off-site CO concentration is predicted to be 5.3 ppm, less than the most stringent applicable AAQS of 9.0 ppm. This maximum is predicted to occur in Year -2 of the operational life of the landfill, using the 2003 meteorological data set. All other operational years are predicted to result in lower ambient concentrations of CO, as shown on Table 4-2.

For years with blasting close to the fenceline (Years -2 through -1), the blast size was limited to smaller blasts and increased in size where pollutant concentrations would be less than the ambient air quality standard. Limitations on the size of blast and corresponding minimum blasting distances are provided in Table 4-3.



Source: Science Applications International Corporation, 2008

Figure 4-1
Maximum Pollutant Concentrations

Table 4-2

Projected Ambient Air Quality Impacts

Year	Pollutant	Averaging Period	Max Concentration Predicted (ppm)	Max Concentration Predicted Met Data Year[a]	Background Concentration (ppm)	Total Ambient Air Quality Impact	Most Stringent AAQS (ppm)	Exceeds AAQS?
-2	CO	1-hr	13.8	2003	5.9	19.7	20.0	No
	CO	8-hr	1.7	2003	3.6	5.3	9.0	No
	NO_2	1-hr	0.2	2003	0.076	0.23	0.25	No
2	CO	1-hr	5.0	2003	5.9	10.9	20.0	No
	CO	8-hr	0.4	2003	3.6	4.0	9.0	No
	NO_2	1-hr	0.1	2003	0.076	0.18	0.25	No
17	CO	1-hr	0.05	2003	5.9	5.9	20.0	No
	CO	8-hr	0.02	2003	3.6	3.6	9.0	No
	NO_2	1-hr	0.001	2003	0.076	0.08	0.25	No

[a] *Meteorological data year when maximum concentration occurs.*

Source: PCR Services Corporation, 2008.

Table 4-3

Blasting Size and Distance Requirements

Year	Size of Blast (acre)	Minimum Distance from Property Line (feet)
-2 and -1	1/8	375
	1/4	560
	3/8	690
	1/2	790
1-22	1/2	----

Source: PCR Services Corporations, 2008.

5.0 CONCLUSIONS

This AQIA provides an analysis of air contaminant emissions from the project using the regulatory approved AERMOD air dispersion model, and evaluates air quality impacts that project emissions will have on State and National AAQS. The AQIA evaluates air quality impacts for CO and NO_2, based on hourly, daily, and annual emissions of those pollutants. The predominate source of these pollutants was from blasting during excavation and to a lesser extent flaring of landfill gases. The frequency, size, and location of blasting and the number of flares is expected to change throughout the operating life of the landfill. Therefore, several scenarios based on worst-case operating years were analyzed. Pollutant emission rates were determined in the Air Emissions Inventory Report, Volume IV of this PA.

Pollutant emissions were input into the AERMOD dispersion model to determine concentrations at nearby off-site receptors. Dispersion modeling parameters followed guidelines recommended by the USEPA and the SDAPCD. Two years of on-site meteorological data was provided for the model to determine the worst-case scenario. Background pollutant concentrations from the closest monitoring stations were used to determine ambient air quality impacts.

Dispersion modeling for worst-case operating years demonstrated CO and NO_2 emissions from landfill operations do not result in any ambient air quality impacts. The maximum 1-hour NO_2 concentration is predicted to be 0.23 ppm, which is the total of the projected background level of NO_2 and the incremental increase in ambient NO_2 predicted to occur from proposed landfill operation related NOx emissions. This peak 1-hour concentration is less than the most stringent applicable AAQS of 0.25 ppm. The maximum 1-hour CO concentration is predicted to be 19.7 ppm, less than the most stringent applicable AAQS of 20 ppm, and the 8-hour CO concentration is predicted to be 5.3 ppm, less than the most stringent applicable AAQS of 9.0 ppm.

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VOLUME VII: UPDATED AIR QUALITY IMPACT ANALYSIS AND HEALTH RISK ASSESSMENT FOR THE PROPOSED GREGORY CANYON LANDFILL

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Volume VII:
Updated Air Quality Impact Analysis and Health Risk Assessment
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ACRONYMS

AAQS	Ambient Air Quality Standards
AERMET	Program to process meteorological data
AERMOD	Dispersion model
AQIA	Air Quality Impact Analysis
ATC	Authority to Construct
BACT	Best Available Control Technology
bhp	brake horsepower
CAAQS	California Ambient Air Quality Standards
CO	Carbon monoxide
cy	Cubic yard(s)
DPM	Diesel Particulate Matter
GCL	Gregory Canyon Ltd.
GCLF	Gregory Canyon Landfill
HARP	Hotspots Analysis Reporting Program
HI	Hazard Index
IMPROVE	Interagency Monitoring of Protected Visual Environments
lb/day	pound per day
lb/hour	pound per hour
lb/ton	pound per ton
LANDGEM	Landfill Gas Emissions Model
LFG	landfill gas
MEIR	Maximum Exposed Individual, Residential
MEIW	Maximum Exposed Individual, Worker
Mg	Megagram (one million grams)
MRI	Midwest Research Institute
mph	miles per hour
m/sec	meters per second
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
OLM	Ozone Limiting Method
PM_{10}	Particulate matter less than 10 micron mean aerodynamic diameter

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ACRONYMS (Continued)

$PM_{2.5}$	Particulate matter less than 2.5 micron mean aerodynamic diameter
PMI	Point of Maximum Impact
ppm	parts per million (by volume)
PTC	Permit to Construct
REL	Reference Exposure Level
SDAPCD	San Diego Air Pollution Control District
tpy	ton per year
TSP	Total Suspended Particulate
$\mu g/m^3$	microgram per cubic meter (of air)
URF	Unit Risk Factor
USEPA	United States Environmental Protection Agency
WBAN	Weather-Bureau-Army-Navy
WMO	World Meteorological Organization

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

Gregory Canyon Ltd. (GCL) is proposing to build a Class III non-hazardous (municipal) solid waste landfill, known as the Gregory Canyon Landfill (GCLF), on a 308 acre portion of 1,770 acres property in San Diego County. The GCLF project includes construction, operation, and closure of the landfill. The project includes a lined landfill, an access road and bridge from SR 76 to the landfill, a scale area, a recyclable goods collection center, a facilities and operations area, two borrow/stockpile areas, a leachate collection and removal system, a water treatment plant, an administration building, a maintenance office, a shop and yard, a fueling station/storage area, a water tank, a water supply well, groundwater monitoring wells, a landfill gas collection and control system, and a groundwater subdrain collection system.

GCLF is permitted to receive up to 5,000 tons per day of Class III non-hazardous (municipal) solid waste. Assuming 5,000 tons per day of solid waste is received each day of operation (6 days per week, 307 days per year), the landfill would reach capacity 22 years after opening. This assumption was made in order to be consistent with the Environmental Impact Report for the landfill.

GCL filed an authority to construct (ATC) permit application to the San Diego Air Pollution Control District (SDAPCD) in April 2007. As of September 2010, this permit application consisted of seven volumes:

Volume I: Permit Application and Forms, submitted April 2007

Volume II: BACT Analysis, submitted May 2008 and updated October 2008

Volume III: Regulatory Analysis, submitted November 2007

Volume IV: Annual Emission Inventory, submitted May 2008 and updated October 2008

Volume V: Air Quality Impact Analysis (AQIA) for Carbon Monoxide (CO), and Nitrogen Oxides (NO_x), submitted February 2008

Volume VI: Health Risk Assessment, submitted May 2008 and updated October 2008

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Volume VII: Particulate Matter Air Quality Impact Analysis and Supplemental Health Risk Assessment for the Proposed Gregory Canyon Landfill, submitted March 2009.

This document is intended to replace the previously submitted Volume VII of the permit application. This Volume VII update includes an AQIA for nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$), and an update to the previously submitted HRA (Volume VI). The purpose of this Volume VII update is to address revised and refined emission estimates, more recent advances in dispersion modeling, the new Federal 1-hour ambient air quality standard (AAQS) for NO_2, updated (pre-project) ambient air quality background data, new reference exposure levels (RELs) published by the California Office of Environmental Health Hazard Assessment (OEHHA) through August 2010, and diesel particulate matter (DPM) emissions from off-road equipment.

To prepare this updated AQIA and HRA, several steps had to be completed as follows: determine the pre-project (background) ambient concentration of NO_2, CO, PM_{10}, and $PM_{2.5}$ in the potential GCLF impact area, refine the emission estimates to represent emissions from proposed operations, perform dispersion modeling to assess potential ambient air quality impacts compared to national and state AAQS, and perform air toxic risk assessment modeling. Each of these steps is discussed in the following paragraphs which correspond to major sections of this document.

1.2 PRE-PROJECT AMBIENT CONCENTRATIONS OF CO, NO_2, AND PARTICULATE MATTER

The proposed GCLF will be located in northern San Diego County off Highway 76 approximately three miles east of Interstate 15 and two miles southwest of the community of Pala. Figures showing the location of the proposed project have been provided in previous Volumes of this permit application and are not repeated here.

The nearest SDAPCD ambient air quality monitoring station to the proposed project site is the Escondido station located about 15 miles south. This station monitors, among other parameters, CO and NO_2. Data from 2005 through 2009 were examined, and the maximum pre-project background concentrations are shown in Table 1-1. The

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methodology and the basis for using the 7th high background NO_2 value are discussed in Section 2 of this document. Note that the maximum background CO concentration did not change from that reported in the February 2008 Volume. Therefore, this update does not discuss potential CO impacts further, as that was discussed in Volume V.

Table 1-1
Pre-project (Background) Ambient Concentrations of CO and NO_2

Pollutant	Averaging Time	Background Concentration
CO	1-hour	5.9 ppm
	8-hour	3.6 ppm
NO_2	Daily First High 1-hour	152 ug/m^3
	Daily 7th High 1-hour	118 ug/m^3
	Annual	34 ug/m^3

Two years of meteorological and ambient air quality (PM_{10} only) monitoring was conducted by GCL in calendar year 2002 and 2003. In order to determine the pre-project background concentrations of PM, the on-site PM_{10} data were coupled with additional PM_{10} and $PM_{2.5}$ monitoring data for calendar years 2002 through 2008 (2009 data are not available) at the Aqua Tibia Wilderness Area located approximately 10 miles northeast of the proposed project. The pre-project background PM_{10} and $PM_{2.5}$ concentrations, along with the California and National AAQS (CAAQS and NAAQS) are shown in Table 1-2. More details are provided in Section 2 of this document,

Table 1-2
Pre-project (Background) Ambient Concentrations of Particulate Matter

Pollutant	Averaging Time	NAAQS (µg/m^3)	CAAQS (µg/m^3)	Most Stringent AAQS (µg/m^3)	Background Concentration (µg/m^3)
PM_{10}	24-hour	150	50	50	36.9
	Annual	None	20	20	17.6
$PM_{2.5}$	24-hour	35	None	35	15.5
	Annual	15	12	12	7.2

1.3 REFINED PARTICULATE EMISSION ESTIMATES

Emission estimates for all operations with the potential to emit pollutants have been provided in previous volumes of this permit application. However, the emission factors

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and estimates in those volumes were conservative, upper bound estimates used primarily to determine applicable regulations and do not represent expected emissions. In order to better represent the potential ambient air quality impact of PM emissions, some of the emission estimates had to be refined – specifically emission estimates for unpaved roads, paved roads, excavation and unloading of landfill cover, wind erosion of exposed landfill surfaces, and blasting. The refinements are discussed in Section 3 of this document, and spreadsheets showing the PM emission calculations are included in Appendices A through F. Appendices G through J contain backup material for some of the emission calculations. Electronic versions of the spreadsheets are included electronically on a compact disc in Appendix K.

Refined emission estimates were calculated for Operational Years -2, 1, 8, 17, 22, and 23 (Operational Year -2 is initial construction of the landfill access roads and cells. Waste is first received in Operational Year 1). The basis for selection of these years is discussed in Section 3 of this document. The emission estimates are shown in Tables 1-3 through 1-5. The toxic emission totals in Table 1-5 include air toxics from fugitive landfill gas, landfill gas combusted in the flares, metals and other toxics contained in native soils, and DPM. The NO_x emissions do not include NO_x from off-road equipment, but those emissions are not considered to make a significant off-site impact as discussed in Section 4.3.

Table 1-3
Proposed GCLF Annual PM_{10}, and $PM_{2.5}$, and NO_2, Emission Estimates

Operational Year	PM_{10} Annual Emissions (tpy)	$PM_{2.5}$ Annual Emissions (tpy)	NO_2 Annual Emissions (tpy)
Year -2	68.2	15.3	1.5
Year 1	82.4	21.0	0.07
Year 8	55.0	16.8	9.6
Year 17	58.5	20.1	20.2
Year 22	37.4	16.3	25.1
Year 23	62.7	20.4	26.1

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Table 1-4
Proposed GCLF Maximum Hourly PM_{10}, and $PM_{2.5}$, and NO_2, Emission Estimates

Operational Year	PM_{10} Maximum Hourly Emissions (lb/hour)	$PM_{2.5}$ Maximum Hourly Emissions (lb/hour)	NO_2 Maximum Hourly Emissions (lb/hour)
Year -2	131.7	21.2	68.0
Year 1	187.4	29.8	136.0
Year 8	60.6	13.1	2.2
Year 17	58.0	13.3	21.6
Year 22	50.3	11.2	5.7
Year 23	195.2	33.0	6.0

Table 1-5
Proposed GCLF Annual and Maximum Hourly Air Toxic Emission Estimates

Operational Year	Total toxics Annual Emissions (tpy)	Total toxics Maximum Hourly Emissions (lb/hour)
Year -2	8.7	15.7
Year 1	11.9	22.3
Year 8	14.9	9.6
Year 17	24.6	11.3
Year 22	18.9	26.7
Year 23	30.8	27.1

1.4 DISPERSION MODELING AND IMPACT ASSESSMENT

Dispersion models are used to estimate the potential off-site impact of project emissions. For this AQIA, the United States Environmental Protection Agency (USEPA)-approved AERMOD model was used with processed on-site meteorological data for calendar year 2002 and 2003. The on-site meteorological data were processed with the USEPA-approved AERMET processor by the SDAPCD with upper air data from the San Diego Miramar Station (World Meteorological Organization [WMO] No. 72293), surface meteorological data (primarily cloud cover) from the Ramona Airport, and on-site surface characteristics derived by the SDAPCD using the AERSURFACE processor. Effective data capture (i.e., the combination of on-site, upper air, and surface meteorological data) for 2002 was approximately 95% and data capture for 2003 approximately 85%. Meteorological data processing is further discussed in

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Section 4 of this document. All six operational years were modeled for both meteorological data years and for NO_2, PM_{10}, and $PM_{2.5}$. The maximum impacts from the twelve combinations of modeled operational years and meteorological data years are shown in Table 1-6.

Table 1-6
Maximum NO_2, PM_{10}, and $PM_{2.5}$ Impacts

Pollutant	Operational Year	Meteorology Data Year	Averaging Time	Most Stringent AAQS ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	GCLF Impact at PMI ($\mu g/m^3$)	Project Background plus Project Impact
NO_2	-2	2002	1-hour	188 (Fed)	118	69.8	187.8
	23	2002	Annual	57 (CA)	0.8	34.0	34.8
PM_{10}	-2	2003	24-hour	50	9.9*	39.9	49.8
	22	2003	Annual	20	2.3	17.6	19.9
$PM_{2.5}$	-2	2003	24-hour	35	8.3	15.5	23.8
	22	2003	Annual	12	0.7	7.2	7.9

*Background value is for maximum impact day.

1.5 SUPPLEMENTAL HEALTH RISK ASSESSMENT

Volume VI of this permit application, submitted in May 2008 and updated in October 2008, presented a detailed Health Risk Assessment (HRA) for all potential toxic emissions from the landfill, including fugitive landfill gas, landfill gas flare emissions, and potential mineral and metal content of particulate emissions associated with handing native soils at the project site during landfill construction and operations. However, OEHHA published new RELs (chronic and acute) in December 2008 for six chemicals, four of which – arsenic, manganese, formaldehyde, and mercury – are potentially emitted from the proposed project. Also, the HRA was prepared using the Industrial Source Complex (ISC) dispersion model and a pre-December 2008 "express" version of the Hotspots Analysis and Reporting Program (HARP) model. Thus, an updated HRA is required. The HRA was conducted with the emissions and dispersion modeling discussed in Sections 3 and 4 of this document. The results are discussed in Section 5 of this document and are summarized in Table 1-7.

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Table 1-7
Health Risk Assessment Results

Criteria	Location	Operational Year	Meteorological Data Year	Maximum HRA Results	Threshold of Concern
Cancer Risk	MEIR	Total all Years	2003	$< 7.8 \times 10^{-6}$	10×10^{-6}
	MEIW	Total all Years	2003	$< 5.1 \times 10^{-6}$	10×10^{-6}
Chronic HI	MEIR	Year 1	2003	0.22	1.0
	MEIW	Year 1	2003	0.19	1.0
Acute HI	MEIR	Years 22, 23	2002, 2003	0.14	1.0
	MEIW	Year 22	2003	0.13	1.0

1.6 SUMMARY

This Volume VII update of the air quality permit application shows that the emissions of NO_2, CO, PM_{10}, $PM_{2.5}$, and air toxics will not cause an exceedance of the relevant ambient air quality standards and health thresholds of concern.

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2.0 PRE-PROJECT BACKGROUND AMBIENT AIR QUALITY

2.1 NO_2 BACKGROUND

There are no on-site ambient NO_2 data available, and the nearest ambient NO_2 data are from the Escondido, California site located about 15 miles south of the proposed project site. The Escondido data are available from the California Air Resources Board (CARB) Air Quality Almanac. Three different background values must be determined: daily 1-hour 1st-high, daily 1-hour 8th-high, and annual average concentrations. This is because the California 1-hour AAQS is a "not to exceed" value and the Federal 1-hour AAQS is a 98th percentile average over 3 years value. The daily 8th-high value is determined by recording the values of the top unique 8th-highest days (i.e., a single day counts once).

Background data are available through calendar year 2009. Table 2-1 summarizes the 1-hour and annual average background in terms of parts per million (ppm) for the most recent three years of available data (as published by the CARB). Table 2-2 summarizes the same data in terms of micrograms per cubic meter (ug/m^3). The conversion was based on sea-level pressure and 25 degrees Celsius per USEPA regulations (0.100 ppm = 188 ug/m^3). In Tables 2-1 and 2-2, the daily 7th-high concentration is used to represent the AAQS-relevant daily 8th-high concentration. This is because USEPA regulations state that when data are incomplete, the rank has to be decreased to account for the missing data. Appendix S of 40 CFR Part 50 states that if between 15 and 64 days are missing, then the daily 7th-high must be used. In 2007, approximately 36 days (875 hours) were missing; in 2008, approximately 50 days (1,206 hours) were missing; and in 2009, approximately 19 days (449 hours) were missing. Thus, the daily 7th-high is appropriate.

Table 2-1
Background NO_2 Concentrations (ppm)

Calendar Year	1st-High 1-hour Concentration (ppm)	Daily 7th-High 1-hour Concentration (ppm)	Annual Average Concentration (ppm)
2007	0.072	0.060	0.016
2008	0.081	0.071	0.018
2009	0.073	0.058	0.016
Maximum	0.081	NA	0.018
3-year Average	NA	0.063	NA

Annual is an arithmetic average. NA = not relevant for published AAQS.

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Table 2-2
Background NO_2 Concentrations ($\mu g/m^3$)

Calendar Year	1st-High 1-hour Concentration ($\mu g/m^3$)	Daily 7th-High 1-hour Concentration ($\mu g/m^3$)	Annual Average Concentration ($\mu g/m^3$)
2007	135	113	30
2008	152	134	34
2009	137	109	30
Maximum	152	NA	34
3-year Average	NA	118	NA

Annual is an arithmetic average. NA = not relevant for published AAQS.

2.2 CO BACKGROUND

The previously submitted Volume V: Air Quality Impact Analysis (AQIA) for Carbon Monoxide (CO), and Nitrogen Oxides (NO_x), submitted February 2008, used calendar years 2005 through 2007 CO background data as those were the most recent data available at the time or preparation of Volume V. Table 2-3 compares the maximum values from 2005 through 2007 to those for 2007 to 2009. As shown, the older values are still the largest. Therefore, the previously submitted Volume V impact analysis for CO does not need to be updated.

Table 2-3
Background CO Concentrations (ppm)

Calendar Year	1st-High 1-hour Concentration (ppm)	1st-High 8-hour Concentration (ppm)
2005	5.9	3.1
2006	5.7	3.6
2007	5.2	3.2
2008	5.6	2.8
2009	4.4	3.5
Maximum	5.9	3.6

2.3 ON-SITE AMBIENT PARTICULATE MONITORING

Two years of meteorological and ambient air quality (PM_{10} only) monitoring was conducted by GCL in calendar year 2002 and 2003. PM_{10} monitoring was conducted once every six days per the USEPA protocol and included a primary and co-located

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sampler. The 24-hour daily results are shown in Table 2-4 for year 2002 and Table 2-5 for year 2003. Annual averages are shown in Table 2-6.

Table 2-4
On-site 24-Hour Ambient PM_{10}, Calendar Year 2002

Date	Primary Sampler PM_{10} ($\mu g/m^3$)	Date	Primary Sampler PM_{10} ($\mu g/m^3$)
1/3/2002	16.8	7/1/2002	21.6
1/9/2002	19.7	7/7/2002	21.5
1/15/2002	19.9	7/13/2002	17.1
1/21/2002	18.0	7/19/2002	19.2
1/27/2002	14.9	7/25/2002	22.6
2/2/2002	13.6	7/31/2002	24.8
2/8/2002	19.3	8/6/2002	21.7
2/14/2002	24.4	8/12/2002	30.0
2/20/2002	16.3	8/18/2002	25.2
2/26/2002	25.2	8/24/2002	23.4
3/10/2002	16.8	8/30/2002	23.1
3/18/2002	9.2	9/5/2002	32.6
3/21/2002	18.4	9/11/2002	28.1
3/27/2002	13.4	9/17/2002	21.8
4/2/2002	19.7	9/23/2002	32.9
4/8/2002	18.6	9/29/2002	6.8
4/14/2002	21.1	10/5/2002	25.6
4/20/2002	22.3	10/11/2002	18.4
4/26/2002	10.2	10/17/2002	19.4
5/2/2002	16.1	10/23/2002	17.3
5/8/2002	22.0	11/4/2002	36.4
5/14/2002	36.0	11/10/2002	10.2
5/20/2002	12.4	11/16/2002	11.5
5/26/2002	16.9	11/22/2002	17.1
6/1/2002	16.6	11/28/2002	15.7
6/7/2002	18.4	12/4/2002	16.7
6/13/2002	23.3	12/10/2002	14.9
6/19/2002	28.2	12/16/2002	15.0
6/25/2002	23.0	12/22/2002	8.0
		12/28/2002	10.5

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Table 2-5
On-site 24-Hour Ambient PM_{10}, Calendar Year 2003

Date	Primary Sampler PM_{10} ($\mu g/m^3$)	Date	Primary Sampler PM_{10} ($\mu g/m^3$)
1/9/2003	9.7	7/2/2003	30.4
2/2/2003	32.6	7/8/2003	26.7
2/8/2003	13.5	7/14/2003	29.9
2/15/2003	10.1	7/20/2003	22.1
2/20/2003	13.0	7/26/2003	22.6
2/26/2003	10.3	8/1/2003	16.2
3/4/2003	7.0	8/7/2003	22.0
3/10/2003	19.3	8/13/2003	32.9
3/16/2003	13.2	8/25/2003	22.5
3/22/2003	17.7	8/31/2003	26.0
3/28/2003	15.2	9/6/2003	36.8
4/3/2003	9.2	9/12/2003*	28.8
4/9/2003	19.7	9/18/2003*	32.1
4/15/2003	8.5	9/24/2003*	33.0
4/23/2003	13.1	10/6/2003*	35.1
4/27/2003	13.0	10/12/2003*	26.8
5/9/2003	16.8	10/18/2003*	30.5
5/15/2003	17.7	10/24/2003*	36.9
5/21/2003	31.3	10/30/2003*	17.0
5/27/2003	23.5	11/5/2003*	16.5
6/2/2003	23.1	11/11/2003*	21.6
6/8/2003	11.6	11/17/2003*	9.6
6/14/2003	24.2	11/23/2003*	14.7
6/20/2003	17.8	11/29/2003*	16.3
6/26/2003	28.8	12/11/2003*	11.5
		12/17/2003*	16.9

*The primary sampler failed after September 6, 2003, and thus the co-located sampler data were added to the data set for September 12, 2003 through December 17, 2003.

Table 2-6
On-Site Annual Average Ambient PM_{10} Concentration

Date	Primary Sampler PM_{10} ($\mu g/m^3$)
2002*	19.7
2003*	20.6

*Arithmetic average

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2.4 AMBIENT PARTICULATE MONITORING AT AQUA TIBIA WILDERNESS AREA

In addition to the on-site PM_{10} monitoring data, there are PM_{10} and $PM_{2.5}$ data available from the Aqua Tibia Wilderness Area IMPROVE station located approximately 10 miles northeast of the GCL proposed location. The average concentrations of PM_{10} and $PM_{2.5}$ for years 2002 to 2008 are shown in Table 2-7. (Only the first three quarters of 2009 data from Aqua Tibia data are available as of August 2010, and thus no annual average is available).

Table 2-7
Aqua Tibia Ambient PM_{10} and $PM_{2.5}$, Annual Averages for 2002-2008

Year	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)
2002	19.9	8.5
2003	16.9	7.8
2004	16.1	6.6
2005	13.2	5.7
2006	13.7	6.3
2007	17.6	6.7
2008	15.4	6.2

2.5 DETERMINATION OF BACKGROUND AMBIENT PARTICULATE CONCENTRATIONS FOR THE PROPOSED PROJECT IMPACT AREA

2.5.1 Background Concentrations for the Annual Standards

Normally, the ambient air quality data collected by GCL at the proposed site would be used to determine the pre-project background concentrations. However, the 2002 and 2003 ambient data are not representative of conditions that will exist in calendar years 2011 through 2035 for the GCLF (i.e., two years to start operations and operations through Operational Year 22) because of at least three notable circumstances: (1) there was an aggregate quarry operating next to the proposed project location in 2002 and 2003, (2) there were significant wild fires in San Diego County in 2002 and 2003, (3) background ambient air quality continues to improve despite additional population. Therefore, a more complex analysis had to be performed to determine the annual average background to be used in this particulate matter AQIA.

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Since the extreme wildfires occurred during 2002 and 2003, neither the data from the on-site monitor nor the Aqua Tibia data during those time periods could be used for background data. Rather, the highest concentration from a non-wildfire year nearest the 2002 and 2003 monitoring period was used. Those years are 2004, 2005 and 2006.

Since there were no on-site data in 2004, 2005, or 2006, the Aqua Tibia data were used as a base but were scaled up by the ratio of on-site to Aqua Tibia data for 2002 and 2003. This does not account for the quarry but does account for the wild fire problem.

Table 2-8 shows the on-site versus Aqua Tibia annual average concentrations for 2002 and 2003. The average of both years was used to determine the scaling factor. Table 2-8 shows that the on-site data were a factor of 1.092 greater than the Aqua Tibia data (20.15 divided by 18.45 = 1.092).

Table 2-8
Aqua Tibia and On-Site PM_{10}, Averages of 2002-2003

Location	Year	PM_{10} ($\mu g/m^3$)	PM_{10} Average ($\mu g/m^3$)
Aqua Tibia	2002	19.9	18.45
	2003	17.0	
On-Site	2002	19.7	20.15
	2003	20.6	

This factor was then applied to the 2004 through 2006 Aqua Tibia data as shown in Table 2-9, and the maximum value of all three years (17.6 $\mu g/m^3$ in 2004) was used as the annual background concentration of PM_{10}.

Table 2-9
Estimated On-Site Annual Average
PM_{10} Concentrations for 2004-2006

Year	PM_{10} ($\mu g/m^3$)	Factor for Increasing PM_{10}	PM_{10} ($\mu g/m^3$)
2004	16.1	1.092	17.6
2005	13.2	1.092	14.4
2006	13.7	1.092	15.0

Since there were no on-site $PM_{2.5}$ monitoring data, an annual average $PM_{2.5}$ value had to be derived. The same on-site to Aqua Tibia ratio of 1.092 was applied to the

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maximum monitored $PM_{2.5}$ at Aqua Tibia for 2004, 2005, and 2006. This results in a $PM_{2.5}$ annual average background of 7.2 µg/m^3 (6.6 µg/m^3 [for 2004 from Table 2-7] times 1.092 = 7.2 µg/m^3).

2.5.2 Background Concentrations for the 24-Hour Standards

For the 24-hour PM_{10} impact assessment, the maximum background PM_{10} concentration on the maximum impact day was added to the maximum modeled impact. This maximum value was compared to the standard. If the maximum impact day occurred on a day where no data were taken (i.e., the ambient data were taken per the USEPA once every six day schedule), the data were interpolated between the two observed values.

No on-site data exist for $PM_{2.5}$, and therefore, the 24-hour background concentration for $PM_{2.5}$ must also be derived. Table 2-7 shows that at Aqua Tibia, the annual $PM_{2.5}$ is 42 percent of the annual PM_{10} (The average annual PM_{10} concentration for 2002 through 2008 is 16.1 ug/m^3, and the average annual $PM_{2.5}$ concentration for the same period is 6.8 ug/m^3.) This percentage from Aqua Tibia data was applied to the on-site PM_{10} data to derive the $PM_{2.5}$ 24-hour concentrations. Thus, the maximum 24-hour $PM_{2.5}$ concentration was 15.5 µg/m^3 [(36.9 µg/m^3) x (42%)].

In summary, the annual and 24-hour background concentrations for PM_{10} and $PM_{2.5}$ are shown in Table 2-10. Note that the 24-hour $PM_{2.5}$ standard is stated in terms of the 98th percentile. However, for purposes of this AQIA, the maximum values were used (i.e., the 1st-high modeled impact was added to the 1st-high background).

Table 2-10
Pre-project (Background) Ambient Concentrations of Particulate Matter

Pollutant	Averaging Time	Background Concentration (µg/m^3)
PM_{10}	24-hour	36.9*
	Annual	17.6
$PM_{2.5}$	24-hour	15.5
	Annual	7.2

*Note that on a given maximum impact day,
the actual monitored background PM_{10} value is used.

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3.0 REFINED EMISSION ESTIMATES

Volume IV of this permit application, submitted in May 2008 and updated in October 2008, presented emission estimates for all potential emissions, including particulate matter and air toxics. However, the methods used to prepare the emission estimates in October 2008 were conservative, upper bound estimates used primarily to determine applicable regulations. In order to perform a representative NO_2, PM_{10}, and $PM_{2.5}$ AQIA and HRA, refined emission estimates for some of the proposed project activities had to be made. Refined emission estimates for particulate matter were made for the following Operational Years:

- Year -2 is the start of construction;
- Year 1 is the first year of operation with continuing construction;
- Year 8 represents standard operating conditions;
- Year 17 represents standard operating conditions and is the operational year where landfill gas emissions may be greatest according to one landfill gas generation model (the BAS model; see Section 3.4 of this document);
- Year 22 is the last year of full operation; and
- Year 23 represents final closure activities and the maximum landfill gas emissions based on the SDAPCD parameters for the LANDGEM model.

The basis for these years as maximum impact years is discussed in Volumes IV and V of this permit application. Appendices A through F contain hard copy printouts of the refined emission spreadsheets for Operational Years -2, 1, 8, 17, 22, and 23. Electronic versions of the spreadsheets are contained on the enclosed compact disc in Appendix K. Some of the refined emission factors are discussed in the following sections, while details regarding all emission factors and assumptions are contained in the Appendices.

3.1 REFINED EMISSION ESTIMATES FOR WIND EROSION, LOADING, UNLOADING, AND EXCAVATION

3.1.1 Silt Content of Fill/Cover Material

The landfill will be designed and operated such that adequate cover material is capable of being obtained on-site. The silt content of that material is a key parameter in estimating particulate emissions. Therefore an analysis of available data was conducted to estimate the silt content.

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The fill/cover material is derived from either the landfill excavation material or borrow/stockpile area excavation materials. The fill/cover will include soils, weathered rock and hard rock. The derivation of the average silt content of the mixture of materials is provided in Appendix G. Based on the material quantities, location of derivation and volumes, the silt content is estimated as 20.7% from materials derived from the landfill and 33% from materials derived from the borrow/stockpile areas. The borrow/stockpile area silt content estimate is considered conservatively high as it is based on soil borings taken in areas where hollow stem augers are advanced into softer alluvium, which is not likely representative of all borrow/stockpile area materials.

Use of the borrow/stockpile area soils will begin after Operational Year 8, and a silt content of 33% is used where this soil is loaded, unloaded, spread, compacted, or stored. However, during Operational Years -2 through 8 in which materials are blasted and excavated, the landfill soils will incorporate a mix of several different types of soil and rock. For these operational years, the silt content is based on the test data and analysis shown in Appendix G. The silt content for hard rock of 4% is based on the recommended value by SDAPCD and is assumed to be conservatively high silt content. The silt contents for top soil of 50.33% and weathered rock of 20.99% are calculated values based on the geometric mean of soil boring silt test data, where the geometric mean is based on the bulldozer emissions equation. Finally, the weighted silt content percentage was derived using the geometric mean silt content values for topsoil, weathered rock, and hard rock using the quantities of materials based on the soil balance sheet from Appendix F of Volume IV of the Air Permit Application, dated October 2008.

3.1.2 Refined Emission Factor for Wind Erosion

Emissions of particulates will occur from wind erosion in areas that are being actively disturbed and also in areas that have previously been disturbed and not fully vegetated. Areas that are fully vegetated are assumed to have zero emissions from wind erosion as these areas will not have increased emissions from landfill operations over those from natural conditions. Unvegetated areas that are not being actively disturbed will have lower emissions than the areas that are being actively disturbed because the inactive areas are likely to form a crust on top of the soil as well as naturally becoming revegetated. Consequently, the inactive non-vegetated areas have a lower emission

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rate than the active areas. Typically, for municipal solid waste operations, no more than two acres will be actively disturbed at any time within the landfill area. The previously disturbed areas that are not yet vegetated will include areas that have been disturbed within the past year. It is assumed that previously disturbed areas will become fully vegetated within one year.

The wind erosion emission factors are derived from the United States Department of Agriculture wind erosion equation as required by SDAPCD. This equation is applicable to wind erosion from open areas and over-estimates wind erosion for GCL due to the canyon nature of the landfill. The landfill area as well as the borrow/stockpile areas are subject to wind erosion during the lifetime of the landfill. The landfill area will become disturbed during construction of the landfill as well as during landfill operations. During construction, the disturbed portions of the landfill during a calendar year could be on the order of 60 acres. The borrow/stockpile areas are also large areas (22 acres for Area A and 64 acres for Area B). The "stockpiles" would be created as excess cover material is moved from the landfill area during construction phases. Because scrapers would be used for the movement to the "stockpile" areas and not a conveyor stacker, the areas would be developed in large flat layers and not stacked into a typical conical shape. Further, the approximate dimensions of Stockpile A would be 1,200 feet by 850 feet, and the approximate dimensions of Stockpile B would be 2,200 feet by 1,200 feet. Thus, the areas would be described as large open flat regions rather than conical regions. Therefore, the stockpile areas can be considered "open areas" subject to the wind erosion equation used for other areas of the landfill.

In the dispersion modeling, wind erosion is modeled as occurring for 24 hours per day, 365 days per year as wind erosion occurs whether the landfill is in operation or not. However, per the USEPA in AP-42 Section 13.2 (USEPA 2006d), wind erosion does not occur if the wind speed is less than 12 mph. A wind threshold velocity of 12 miles per hour (mph) or greater must occur to scour particles from an open exposed area in order for there to be windblown dust emissions. As a result the wind erosion emissions were turned off for hours with wind speeds below 12 mph. In order to account for all the calculated mass of emissions, however, the modeled emission rates were scaled in the model to ensure that all potential mass emitted was modeled.

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3.1.3 Refined Emission Rate for Excavation

The emission factor for excavation was derived from the AP-42 bulldozing equation from Section 11.9, Western Surface Coal Mining (USEPA 1998). This equation calculates emissions in pounds per hour. For landfill construction and operations, the volume of material excavated was known; therefore, the AP-42 bulldozing equation was multiplied by the production rate of a typical bulldozer used for similar applications to convert the equation to pounds of emissions per 1000 cubic yards of material excavated. The emission factor equation is:

$$EF_{ex} = \frac{1.0(k)(S)^{1.5}}{(M)^{1.4}} R$$

where,

EF_{ex} = Excavation emission factor (lbs/1000 cubic yards)

k = Scaling factor (0.75 for PM_{10})

S = Silt value of material being excavated

M =Moisture value of the material for controlled conditions

R = Bulldozer production value (cubic yards/hour).

The silt value used in this equation was the silt value of the material as explained in Section 3.1.1; 20.7% for material originating from the landfill area or 33% for material originating from the borrow/stockpile areas. The moisture used in the equation was the moisture value at controlled conditions. The native moisture value (uncontrolled) of the material was assumed to be 6.71%, which is the average moisture value of the test data that was used for the silt calculations (Appendix G). Emissions are controlled through wetting, and the moisture content would be increased by 1.75%, to a total of 8.46%.

3.1.4 Refined Emission Factor for Loading and Unloading

Material loading and unloading at the landfill would be accomplished by the use of scrapers. Because scrapers load or unload material by spreading it and not via a batch dump, the AP-42 bulldozing equation as explained in Section 3.1.3 was also used for scraper activities. Further, because the scraper must travel as it is loading or unloading material, emissions from scraper travel were also accounted for by using the AP-42 unpaved road equation from Section 13.2.2.

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3.1.5 Refined Emission Factor for Handling Clay Liner Material

Clay liner material is imported to the site for construction of the landfill cells. This material is delivered wet and does not have a potential for significant emissions. The efficiency of clay liners is impaired if they are allowed to dry out during placement, therefore, the material is kept sufficiently wet, with approximately 18% moisture content. Emission factors were identified based on AP-42 Section 11.3 for Bricks and Related Clay Products. AP-42 Section 11.3 provides a PM_{10} emission factor for raw ("dry") clay with 4% moisture content of 0.53 lb/ton processed. AP-42 Section 11.3 also provides an emission factor for "wet" clay with 13% moisture content as 0.0023 lb/ton processed. Thus, there is a control efficiency of slightly more than 99.5% between 4% moisture and 13% moisture clay. Although this control efficiency was demonstrated, for purposes of estimating emissions at GCL, a more conservative control efficiency of 90% used for clay and applied to the SDAPCD's emission factors for uncontrolled dozer and compactor emission equations. The resulting emission factors are shown in the Appendices.

3.1.6 Potential Wind Erosion Emissions from De-silting Basins

The de-silting basins are used to capture storm water runoff and, therefore, the material in the basins is wet and does not have the potential for wind erosion. Prior to the dry season, the material will be cleaned out and/or covered with gravel so that no dry, erodible material is exposed. Thus, there are no wind erosion emissions from the de-silting basins.

3.2 REFINED EMISSION ESTIMATES FOR ADDITIONAL ACTIVITIES

3.2.1 Rock crushing

During the early years of construction and excavation, a rock crusher will be used to crush rock that is used as part of the cover material. The annual emissions from the rock crusher are based on the amount of rock to be crushed and individual emission factors for each of the pieces of equipment used in the crusher. Hourly and daily emissions from the rock crusher are based on the maximum throughput of the equipment. The emission factors are based on AP-42, Fifth Edition, Volume I (January 1995), and from SDAPCD guidance documents as noted in the footnotes to the Appendices. Rock is crushed only down to gravel size material with a silt content of

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less than 4 percent. There is additional rock (i.e., shot rock and boulders) that is also excavated from the landfill area, but it is simply stored, not crushed.

3.2.2 Municipal Solid Waste Spreading and Compacting

When the municipal solid waste arrives at the facility, after weighing, it is placed in the active cell. The refuse is then spread with a bulldozer and compacted. Emissions from spreading the refuse are calculated with the AP-42 bulldozing equation as shown in Section 3.1.3. Emissions from compacting the municipal solid waste are calculated from the AP-42 bulldozing equation presented in Section 3.1.3 and the unpaved road equation from AP-42, Section 13.2.2 because the compactor must travel as it compacts down the refuse. The emission factors and emissions from this activity are detailed in the Appendices.

3.2.3 Cover Material Compacting

Daily cover is placed over the municipal solid waste (either soil or alternative daily cover [ADC]) after it has been spread and compacted. Daily cover material would have been previously spread from the scraper unloading activity. It will then be compacted down similar to the compacting of the municipal solid waste; however, the silt and moisture values are that of the soil material as presented in Section 3.1.1. The emission factors and emissions from this activity are detailed in the Appendices.

3.2.4 Blasting

During construction of the landfill, blasting of hard rock will occur as part of the excavation. There will be no more than one blast per day, and the acreage blasted at any one time can range from one-sixteenth of an acre to one-half of an acre. The amount of material that needs to be blasted varies from year to year, with most blasting occurring during Operational Year -2, but a limited amount of blasting could occur during operational years when cover material is being excavated from Borrow/Stockpile Area B, such as in Operational Year 17.

In order to estimate emissions from blasting, emission factors from AP-42 Section 11.9.2 were used as shown in the Appendices. One-sixteenth, one-eighth, one-quarter, and one-half acre blasts were used in combination based on the potential location of the blasts and the amount of material that must be blasted.

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3.2.5 Road Maintenance and Grading

The unpaved roads and other areas of the active landfill will need to be maintained with a road grader. Potential emissions from road grading were estimated with AP-42, Fifth Edition, Volume I, Section 11.9, and the operational assumptions shown in the Appendices.

3.3 REFINED EMISSION ESTIMATES FOR ON-SITE ROADS

There are four types of roads on the proposed project site: paved, unpaved stabilized, unpaved unstabilized, and unpaved roads at the active face of refuse fill and soil borrow/stockpile areas (Areas A and B), termed "road ends". Different emission factors were used for each type of road as follows.

3.3.1 Paved Roads

Paved road emissions were estimated with the equations in AP-42, Fifth Edition, Section 13.2.1 and the addition of a speed factor as requested by SDAPCD. The AP-42 emission factors are based on all types of road including freeways. The data used to develop the emission factors in AP-42 were for speeds of 10 miles per hour (mph) to 55 mph, a mid-point speed of 32.5 mph. However, at the proposed site, traffic will average a speed of less than 7.5 mph (one-half the speed limit of 15 mph). Therefore, the AP-42 emission factors were adjusted by a factor of 7.5/32.5 or 0.23. The equations and other factors are detailed in the Appendices. No emission control efficiency was assumed for the paved roads even though they will be actively maintained and controlled to minimize potential particulate emissions.

3.3.2 Unpaved Stabilized Roads

One of the key variables in determining particulate emissions from unpaved roads is the control efficiency that can be attained using biodegradable organic polymer suppressants, water, road design and construction, and other techniques. For this AQIA, it was assumed that an emission control efficiency of 97 percent could be attained. This was based on numerous conversations with various dust suppressant vendors who confirmed that better than 97 percent reduction in airborne emissions from haul roads in an industrial setting is achievable.

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The second key parameter is silt content of the surface soil on the haul road. The SDAPCD document, "Haul Road Emissions" (SDAPCD 1998c), specifies a default value for surface material silt content for an unpaved road of 15 percent. This silt content value was used, despite the fact that the data provided by the SDAPCD (SDAPCD 2009b) shows a median silt content for soils in the vicinity of the project of 9.8 percent.

The remaining parameters and emission factor equations are shown in the Appendices.

3.3.3 Unpaved Unstabilized Roads

It is not possible to actively stabilize all of the unpaved roads, since the stabilization effort requires engineering and "building" the unpaved road. Some of the roads change location too frequently to be stabilized sufficiently to achieve 97 percent control. For these roads, 90 percent control efficiency was assumed, which can be achieved with watering and/or application of an organic polymer to non-engineered unpaved roads.

3.3.4 Road Ends

For road ends of the scraper roads near the active areas of excavation or daily cover operations, the silt content was increased to 20.7 percent or 33 percent to match the cover soil silt content associated with the area of activity. It was assumed that approximately 200 to 500 feet of each end of the scraper haul road and the last 200 feet of the main haul road for refuse trucks would have the higher silt content. A control efficiency of 90 percent was assumed, which can be achieved with watering and/or application of an organic polymer to non-engineered unpaved roads.

3.4 REFINED EMISSION ESTIMATES FOR LANDFILL GAS

The October 2008 update to Volume IV, Annual Emission Inventory, presented an analysis of potential landfill gas (LFG) generation quantities and the required capacity of the landfill gas flares. The range of methane gas generation rates was based on a proprietary landfill gas generation model developed by Bryan A. Stirrat and Associates (BAS), and the number of flares, flare capacity, and maximum flare emissions were based on the USEPA default landfill gas generation model, LANDGEM.

The BAS model is based on USEPA first order decomposition equation but considers site specific factors related to the local climate and geology. The model was developed based on experience in LFG collection and control system design and analysis of

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operating data from landfills in Southern California. While the specific parameters for this model are proprietary, the resulting methane production was illustrated in Figure 10-1 in Volume IV. That figure shows several methane production curves with potential methane production ranging from approximately 1,800 scfm up to 4,500 scfm.

Volume IV also showed a USEPA LANDGEM methane production curve in Figure 10-1. The figure shows that using USEPA LANDGEM, the methane production peaked at approximately 3,250 scfm, using LANDGEM parameters of k = 0.02 ($year^{-1}$) and Lo = 100 (m^3/Mg). These values are the recommended defaults for arid landfills on page 2.4-4 of AP-42, Fifth Edition, Volume I, Section 2.4, *Municipal Solid Waste Landfills*, Final Section.

The Methane Generation Rate Constant (k) determines the rate of landfill gas generation. The constant "k" is a function of moisture content in the landfill refuse, availability of nutrients for methanogens, pH, and temperature. For areas receiving less than 25 inches of rainfall per year, the recommended value for k is 0.02.

The Potential Methane Generation Capacity (Lo) is a constant that represents the potential capacity of a landfill to generate methane. "Lo" depends on the amount of cellulose (mostly green waste) in the refuse. Given the increasing use of green waste for compost or energy generation, and that processed green waste is a secondary source of alternative daily cover, the landfill is not likely to accept substantial amounts of green waste for disposal or alternative daily cover, and it is acceptable to use a relatively low Lo value such as the 100 m^3/Mg used in Volume IV.

However, the SDAPCD has its own default parameters for LANDGEM that are slightly different from the USEPA parameters. The SDAPCD uses a k of 0.02 and a Lo of 3,530 ft^3/ton. Converting the SDAPCD Lo value to m^3/Mg gives a Lo of a 110 m^3/Mg. If LANDGEM is run with those parameters, peak methane production is 3,675 scfm or about 13% greater than the peak of 3,250 scfm presented in Volume IV. The LANDGEM model run is shown in Appendix J and included on the Appendix K compact disc. Note that the maximum methane generation occurs in Year 23 with the SDAPCD parameters rather than Year 17 with the Volume IV parameters.

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All of the landfill gas and flare emissions in this updated AQIA and HRA are based on the SDAPCD parameters, and do not utilize the BAS estimates. In addition, it is assumed that at least 90 percent of the landfill gas generated in the landfill will be captured and combusted in the flares.

3.5 $PM_{2.5}$ EMISSION ESTIMATES

For some of the emissions sources, such as unpaved roads, scaling factors for calculating $PM_{2.5}$ emission factors are published in AP-42. For other emission sources, $PM_{2.5}$ to PM_{10} ratios had to be determined from references other than AP-42. Unpaved roads, wind erosion, unloading, and blasting were sources that had AP-42 $PM_{2.5}$ scaling factors. Of those sources with AP-42 references, two methods were applied: calculating $PM_{2.5}$ emission factors directly by using the appropriate scaling factor, or applying a ratio based on k-factors. For the sources without AP-42 references, general guidance from a Midwest Research Institute (MRI) document (MRI 2006) was applied. This reference stated that for typical uncontrolled fugitive dust sources, existing test data supports $PM_{2.5}$ to PM_{10} ratios in the range of 0.1 to 0.15. To be conservative, the 0.15 value was used for sources without direct AP-42 references.

3.5.1 $PM_{2.5}$ Emission Factor for Blasting

The $PM_{2.5}$ emission factor for blasting was calculated directly out of AP-42. Volume IV of this air permit application uses AP-42, Section 11.9 for Western Surface Coal Mining (USEPA 1998b) for the PM_{10} emission factor. Table 11.9-1 in AP-42 lists the TSP emission factor equation for blasting of coal or overburden along with the scaling factors for both PM_{10} and $PM_{2.5}$. The scaling factor of 0.03 was applied to the TSP equation to get the corresponding $PM_{2.5}$. The corresponding PM_{10} scaling factor is 0.52; therefore, the percentage of PM_{10} that is $PM_{2.5}$ resulting from blasting is 6%.

3.5.2 $PM_{2.5}$ Emission Factor for Excavation, Loading and Unloading Soil

The emission factor for unloading soil was presented in Section 3.1.4 of this document. The current version of AP-42 (USEPA 2006b) lists a particle size multiplier (k-factor) of 0.053 for $PM_{2.5}$. This value was applied to the equation presented in Section 3.1.3 of this document. Since the corresponding k-factor for PM_{10} is 0.35, the percentage of PM_{10} that is $PM_{2.5}$ resulting from unloading is 15%.

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3.5.3 $PM_{2.5}$ Emission Factor for Unpaved and Paved Roads

Volume IV of this air permit application references the SDAPCD document "Haul Road Emissions" (SDAPCD 1998c) for calculating emissions from unpaved roads. The SDAPCD document uses the unpaved haul road equation from Section 13.2.2 of AP-42 (USEPA 1995c). This version of AP-42 lists k-factors of 0.36 and 0.095 for PM_{10} and $PM_{2.5}$ respectively. These k-factors result in $PM_{2.5}$ being 26% of PM_{10}. However, the current version of AP-42 (USEPA 2006a) lists k-factors of 1.5 and 0.15 for PM_{10} and $PM_{2.5}$ respectively. Since the unpaved haul road equation in the current version of AP-42 is different from the January 1995 version, these updated k-factors could not be directly applied. Since the updated k-factors result in a $PM_{2.5}$ to PM_{10} ratio of 0.1, the $PM_{2.5}$ emissions used in this AQIA for unpaved roads are approximately 2.6 times greater than would be calculated with the newer version of AP-42.

Likewise, paved road emissions are calculated with an older version of the paved road equation from Section 13.2.1 of AP-42 (USEPA 1995c), as requested by SDAPCD. This version of AP-42 lists k-factors of 0.016 and 0.0073 for PM_{10} and $PM_{2.5}$ respectively. These k-factors result in $PM_{2.5}$ being 7.7% of PM_{10}. However, the current version of AP-42 (USEPA 2006a) lists k-factors of 0.016 and 0.0024 for PM_{10} and $PM_{2.5}$ respectively. Thus, the paved road $PM_{2.5}$ emissions used in this AQIA are approximately 3.0 times greater than would be calculated with the newer version of AP-42.

3.5.4 $PM_{2.5}$ Emission Factor for Wind Erosion

As stated in Section 3.1.2 of this document, the emission factors for wind erosion were referenced from the USDA aggregate wind erosion equation. The current version of AP-42 (USEPA 2006c), Section 13.2.5 for Industrial Wind Erosion contains a $PM_{2.5}$ to PM_{10} ratio of 0.15 based on k-factors. Although the equation for industrial wind erosion presented in the November 2006 version of AP-42 was not used to derive the wind erosion emission factor for PM_{10}, the AP-42 ratio was applied.

3.5.5 $PM_{2.5}$ Emission Factor for Excavation and Daily Cover Operations

Section 3.1.2 of this document discusses the PM_{10} emission factor used for excavation. It was assumed that the $PM_{2.5}$ to PM_{10} ratio for excavation and daily cover operations would be the same as for unloading of soil since the processes all involve the creation

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of fugitive dust by moving soil. Thus, a $PM_{2.5}$ to PM_{10} ratio of 0.15 was applied to emissions from excavation and daily cover operations.

3.5.6 $PM_{2.5}$ Emission Factor for Drilling

The PM_{10} emission factor for wet drilling was referenced out of AP-42 (USEPA 2004a), Section 11.19.2 for Crushed Stone Processing and Pulverized Mineral Processing. There is no $PM_{2.5}$ emission factor for wet drilling, so an estimation based on a similar mechanical process was used. Table 11.19.2-2 from AP-42 (USEPA 2004a) lists emission factors for both PM_{10} (0.00054 lb/ton) and $PM_{2.5}$ (0.00010 lb/ton) for controlled tertiary rock crushing (controlled tertiary rock crushing is also a wet process). Since wet drilling and controlled tertiary rock crushing are both wet mechanical processes performed on rock, their $PM_{2.5}$ to PM_{10} ratios should be similar. Therefore, a $PM_{2.5}$ to PM_{10} ratio of 0.185 (0.00010 divided by 0.00054) was used to estimate $PM_{2.5}$ emissions from drilling.

3.5.7 $PM_{2.5}$ Emission Factor for Landfill Gas Flares

The PM_{10} emission factor for emissions from landfill gas flares is referenced in Table 2-9 of Volume IV of this air permit application; however, a $PM_{2.5}$ emission factor is not listed in Volume IV. Emissions from flares are produced by combusting the landfill gas in the flares. Combustion processes produce much smaller particles than mechanical processes such as moving soil. Therefore, it was assumed that 100% of the PM_{10} emissions produced by combustion of landfill gas in the flares would be $PM_{2.5}$.

3.6 EMISSION ESTIMATES FOR DIESEL PARTICULATE MATTER

Potential emissions of diesel particulate matter (DPM) from off-road equipment are included in the PM_{10} and $PM_{2.5}$ emission totals and are also included in the individual air toxic and summary air toxic emissions. The methodology and DPM emission factors are shown in the Appendices. It was assumed that the off-road equipment would meet Tier 2 standards (i.e., the engines would be newer than model year 2000 for equipment greater than or equal to 300 brake horsepower [bhp] and model year 2002 for equipment less than 300 bhp). It is likely some of the off-road equipment will actually meet Tier 3 or 4 emission limits, thus this is a conservative (i.e., over-estimate) assumption for DPM emission factors. It was assumed that all DPM is $PM_{2.5}$ or smaller.

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3.7 REFINED EMISSION ESTIMATES FOR AIR TOXICS

The Appendices detail the methods used to calculate potential air toxic emissions. These emissions include constituents of the soil, emissions of DPM from off-road equipment, constituents of fugitive landfill gas that may escape from the surface of the landfill, and constituents of the landfill gas that is combusted using flares.

As discussed in the previous section, the unpaved roads will be stabilized with the use of a bio-degradable soil stabilizer such as SOILTAC, manufactured by Soilworks, LLC. It has been reported (a September 4, 2009 Material Safety Data Sheet, MSDS, shown in Appendix G) that SOILTAC may contain trace amounts of two volatile organic chemicals as trace constituents of the organic polymer that constitutes SOILTAC. The two chemicals are acetone and vinyl acetate. Acetone is not a volatile organic chemical as defined by regulation, and it also does not have any published health thresholds contained in the HARP model (see the section on toxics modeling). Vinyl acetate is included in HARP.

However, a more recent chemical analysis indicates that neither acetone nor vinyl acetate are contained in the SOILTAC organic polymer (which is expected). The chemical analysis showing this fact is contained in Appendix I. Although Soilworks is certain that neither acetone nor vinyl acetate are contained in the organic polymer, for purposes of this AQIA and HRA, emissions from both chemicals have been estimated and included in the air toxics emissions and HRA. The emissions are shown on the spreadsheets contained in the Appendices.

3.8 SUMMARY OF EMISSION ESTIMATES

The refined emission estimates result in the NO_2, PM_{10}, and $PM_{2.5}$ annual and daily emission estimates shown in Table 3-1, maximum hourly emission rates shown in Table 3-2, and potential total air toxic emissions shown in Table 3-3.

Refined emission estimates were calculated for Operational Years -2, 1, 8, 17, 22, and 23. The emission estimates are shown in Tables 3-1 through 3-3. The toxic emission totals in Table 3-3 include air toxics from fugitive landfill gas, landfill gas combusted in the flares, metals and other toxics contained in native soils, and DPM. The NO_x emissions do not include NO_x from off-road equipment, but those emissions are not considered to make a significant off-site impact as discussed in Section 4.3.

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Table 3-1
Proposed GCLF Annual PM_{10}, and $PM_{2.5}$, and NO_2, Emission Estimates

Operational Year	PM_{10} Annual Emissions (tpy)	$PM_{2.5}$ Annual Emissions (tpy)	NO_2 Annual Emissions (tpy)
Year -2	68.2	15.3	1.5
Year 1	82.4	21.0	0.07
Year 8	55.0	16.8	9.6
Year 17	58.5	20.1	20.2
Year 22	37.4	16.3	25.1
Year 23	62.7	20.4	26.1

Table 3-2
Proposed GCLF Maximum Hourly PM_{10}, and $PM_{2.5}$, and NO_2, Emission Estimates

Operational Year	PM_{10} Maximum Hourly Emissions (lb/hour)	$PM_{2.5}$ Maximum Hourly Emissions (lb/hour)	NO_2 Maximum Hourly Emissions (lb/hour)
Year -2	131.7	21.2	68.0
Year 1	187.4	29.8	136.0
Year 8	60.6	13.1	2.2
Year 17	58.0	13.3	21.6
Year 22	50.3	11.2	5.7
Year 23	195.2	33.0	6.0

Table 3-3
Proposed GCLF Annual and Maximum Hourly Air Toxic Emission Estimates

Operational Year	Total toxics Annual Emissions (tpy)	Total toxics Maximum Hourly Emissions (lb/hour)
Year -2	8.7	15.7
Year 1	11.9	22.3
Year 8	14.9	9.6
Year 17	24.6	11.3
Year 22	18.9	26.7
Year 23	30.8	27.1

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4.0 DISPERSION MODELING AND IMPACT ASSESSMENT

Ambient air quality impact modeling was previously conducted and reported in Volumes V and VI of this permit application. Volume V presented an AQIA for CO and NO_x, while Volume VI presented an HRA. The modeling in Volume VI was based on the ISC model and on-site surface and San Diego Miramar Station (WMO No. 72293) upper air meteorological data for calendar years 2002 and 2003. However, in December 2006 the USEPA published revised modeling guidelines that require the use of a dispersion model called AERMOD. The AERMOD model uses a combination of on-site, off-site surface, and off-site upper air meteorological data to better represent dispersion at the proposed project site. The modeling in Volume V was based on the AERMOD model with on-site surface, San Diego Miramar Station (WMO No. 72293) upper air meteorological data, and San Diego Miramar Station (Weather-Bureau-Army-Navy [WBAN]) No. 93107) off-site surface meteorological data for calendar years 2002 and 2003.

4.1 AMBIENT AIR QUALITY STANDARDS

For the NO_2, PM_{10}, and $PM_{2.5}$ impact assessment, the total impact of the proposed project plus background is compared to the California and Federal AAQS. Table 4-1 shows the relevant standards.

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Table 4-1
Relevant National and California Ambient Air Quality Standards
(Source: California Air Resources Board, August 3, 2010)
(All standards expressed in ug/m^3 except as noted.
Converted at sea level and 25 degrees Celsius)

Pollutant	Averaging Time	CAAQS (ug/m^3)	NAAQS (ug/m^3)	Most Stringent Standard (ug/m^3)
NO_2	1-hour	339	188 (Note 1)	188 (Note 1)
	Annual	57	100	57
PM_{10}	24-hour	50	150	50
	Annual	20	No separate standard	20
$PM_{2.5}$	24-hour	No separate standard	35 (Note 2)	35 (Note 2)
	Annual	12	15	12

Note 1: Three-year average of the 98th percentile of the daily maximum 1-hour concentration.
Note 2: Three year average of the 98th percentile daily concentration.

4.2 METEOROLOGICAL DATA AND DISPERSION MODEL

For this Updated AQIA and HRA, the calendar years 2002 and 2003 on-site meteorological data were supplemented by Ramona Airport surface and San Diego Miramar Station (WMO No. 72293) upper air data. The meteorological data were processed by the SDAPCD and provided to GCL for this purpose. The SDAPCD specified the surface characteristics and supplemental surface meteorological data to be used. The key surface characteristics are presented in Table 4-1. The meteorological data were processed with the AERMET processor (Version 06341) and the AERSURFACE processor (Version 08009). AERSURFACE is a processor that uses land cover data to evaluate surface characteristics by month of the year and sector for input into AERMET. Twelve sectors were used for determining surface characteristics, but the only parameter that differed by sector for each month was surface roughness. The surface roughness values in Table 4-2 are averages of the twelve sectors. Ramona surface meteorological data were used to supplement the on-site data because the on-site data did not contain measurements of cloud cover and other required parameters.

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Table 4-2
Surface Characteristics Used for Processing the On-Site Meteorological Data

	Autumn	Transitional Spring	Midsummer
Months	**January - February, October - December**	**March - April**	**May - September**
Albedo	0.18	0.16	0.18
Bowen Ratio	1.08	0.62	0.71
Average Surface Roughness	0.301	0.252	0.301

To reflect the limitations of the on-site wind instrumentation used, the wind speed threshold used in AERMET was set at 0.4 m/sec. Therefore, any on-site wind speed measurement below 0.4 m/sec was treated as calm.

The resultant data capture for the processed data is shown in Table 4-3. The data capture for on-site data included parameters of wind speed, wind direction, temperature, and sigma theta. The Ramona Airport data capture included parameters of station pressure, precipitation, opaque/total sky cover, temperature, relative humidity, wind direction, and wind speed. Finally, the Miramar upper air data capture included parameters of atmospheric pressure, height, dry bulb temperature, and dew point temperature. The data capture for the processed data is calculated as the percentage of hours with missing data out of the total annual hours. For example, the AERMOD output file reports 2002 as having 497 hours with missing data out of 8760 hours for the entire year. The processed meteorological data set used is included on the Appendix K compact disc.

Table 4-3
Meteorological Data Capture

	2002	2003
On-site	99.5%	96.9%
Ramona Airport	94.9%	93.0%
Miramar Upper Air	96.5%	96.6%
Combined Processed Data	94.3%	84.9%

The processed meteorological data were used in conjunction with the refined emission estimates discussed in Section 3 of this volume and the AERMOD model (AERMOD

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Breeze 07026, Breeze Version 6.2.2) to evaluate potential ambient particulate impacts for 1-hour, 24-hour, and annual averages.

4.3 NITROGEN OXIDES CONVERSION

Most processes initially emit nitrogen oxide (NO), not nitrogen dioxide (NO_2). The NO is converted to NO_2 over time in the atmosphere through various reactions but primarily through reaction with ozone. In fact, it is generally recognized that the amount of ozone available in the atmosphere controls the amount of NO to NO_2 conversion that can occur on an annual basis (this is termed "ozone limiting"). Short term conversion of NO to NO_2 has not generally been a topic of significant study by the USEPA because until recently (early 2010), only an annual AAQS for NO_2 had been federally published and the California 1-hour NO_2 standard was relatively large.

There are two significant sources of NO_2 emissions at the proposed project: NO_x emissions from the combustion of landfill gas in the flare and NO_x emissions from combustion of ANFO during blasting. A third potential source is off-road equipment. However, on an hourly basis, the total NO_x emissions from off-road equipment are on the order of one-third the flare and blasting emissions, and the NO_x emissions from off-road equipment are spread out over a large area (where the blasting and flare emissions are single point source emissions). Accordingly, the contribution of off-road diesel NO_x emissions to the potential ambient air quality impact at the points of maximum impact (PMIs) for blasting and the flare will be insignificant. On an annual basis, NO_x emissions from off-road equipment are on the order of one-half total NO_x emissions. Again, since the equipment is spread out over a large area, the contribution of off-road equipment to the PMIs for blasting and the flare will be insignificant.

It is well established that normal natural gas combustion occurs at temperatures that cause the initial ratio of NO_x to NO_2 to be about 10 to 1. Therefore, for this AQIA, it was assumed that initially 10 percent of the NO_x was NO_2. On an annual basis, the USEPA suggests three methods for assessing conversion: the Ozone Limiting Method (OLM), the Plume Volume Molar Ratio Method (PVMRM), and a default 75 percent conversion method. The most conservative assumption is to simply assume that 100 percent of the NO_x is converted to NO_2. The default 75 percent conversion method is based on a nation-wide average of monitored NO_2 to NO_x ratios. It is not source or geographic specific. The PVMRM method is less conservative (i.e., predicts lower conversion

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percentages) than OLM, as it also considers the rate of entrainment of ozone into the plume. OLM assumes that the only limiting factor on conversion is the amount of available ozone (i.e., there is infinite time and infinite mixing available for conversion). It is geographic and source specific and conservative. To evaluate the ambient annual average impact of NO_2 from the flare, 100 percent conversion was conservatively assumed. For the 1-hour average evaluation, it was conservatively assumed that OLM applies, even though OLM only applies when there is a relatively long time for conversion. This is because the flare has continuous NO_x emissions.

The blasting NO_x emissions are quite different from flare emissions. During a blast, combustion occurs nearly instantaneously, and there is only one blast per day. Secondly, the blasting temperatures are much higher, so the initial amount of NO_2 versus NO_x is much smaller. Four research papers examined the relative proportion of NO_2 in the NO_x emitted from ANFO blasts. The most relevant paper examined NO_2 conversion at an open cut coal mine in Australia (NO_x Emissions from Blasting Operations in Open-cut Coal Mining, *Atmospheric Environment* 42 (2008) pages 7874 – 7883). This paper found the average ratio of NO to NO_2 was 27 to 1 (or NO_x to NO_2 ratio of 28 to 1, i.e., NO_2 is 3.6% of NO_x). This average was over a time frame of zero to about 10 minutes. The other papers used blast chambers to assess the NO_2 conversion. One paper calculated a rate constant for conversion (Behavior of Nitrogen Oxides in the Product Gases from Explosive Detonation, R. Mainiero, J. Rowland III, M. Harris, and M. Sapko, NIOSH). This paper showed 2% conversion at 1 minute after the blast, 4% after 2 minutes, 6% after 3 minutes, 8% after 4 minutes, 9% after 5 minutes, and 19% after 10 minutes. Two other papers using a blast chamber reported conversion after 10 minutes of 35% and 50%.

The maximum off-site impact of NO_2 from blasting occurs when the blast is very near the property boundary (on the order of 100 to 250 meters) and there is a low wind speed such that there is limited dispersion and entrainment into the plume of ambient air. If the wind speed is 1 meter per second (m/s) it takes the plume only 2 minutes to reach the property boundary (i.e., to travel 120 meters). Therefore, the 10-minute conversion times are not relevant. However, a comparison of the 10-minute papers does show that the one paper that calculated a rate constant may underestimate conversion by as much as a factor of approximately 2.5 (i.e., if the conversion

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percentage is 50% after 10 minutes and the rate constant calculations show only 19% conversion, the rate constant calculation under calculates conversion by 50/19 = approximately 2.5). For a 2 minute travel time, the rate constant method resulted in 4% conversion. If the rate constant underestimates by a factor of 2.5, then at 2 minutes, the conversion could be 10% instead of 4%. It is also recognized that blasting may occur at distances further from the property boundary. Although at further distances, the increased dispersion reduces the concentration of NO_2 faster than conversion percentages increase the concentration of NO_2. To be conservative, (i.e., over estimate), a constant 19% conversion was assumed for the 1-hour NO_2 impact of blasting. This is most likely a factor of at least 2 to 5 times too great. For the annual average impact assessment, 100% conversion was conservatively assumed.

There are two additional complexities related to evaluating the potential ambient air quality impact of blasting: plume height for NO_2 and PM emissions, and the nature of the 1-hour federal NO_2 standard compared to the California standard.

For plume height, for PM emissions, it was assumed that the PM is emitted at ground level, even though there is some plume rise of particulates, and thus this is a conservative (over-estimate) assumption. On the other hand, since NO_x emissions are caused by combustion and there is considerable thermal buoyancy associated with the blast, a plume height had to be calculated. The USEPA-recommended OBODM (Open Burning, Open Detonation) model was used to calculate the plume height. The plume height calculated by OBODM was about 10 to 50 meters; depending on the size (i.e., amount of ANFO and acreage) of the blast (the OBODM runs are included electronically on the Appendix K compact disc). For dispersion modeling, the release height is the mid-point of the plume rise, which was used in the model.

The federal NO_2 AAQS is stated as a three-year average probability, while the California standard is stated as "not to exceed". Accordingly, for evaluation of the potential impacts compared to the California standard evaluation, the first-high modeled concentration was added to the first-high background concentration. For evaluation of the potential impacts compared to the Federal standard, the first-high modeled concentration was added to the 7^{th}-high background (as discussed previously). This is an over-estimate of the potential impact, as the probability distribution is a combination

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of modeled plus background values; not simply background. Nevertheless, it will be used for this AQIA.

4.4 NO_2 IMPACT RESULTS

Potential ambient NO_2 impacts of blasting and the flare were modeled for all six operational years, using the methodology discussed previously. For the 1-hour AAQS, blasting was assumed to occur at a location that was nearest the property boundary and produces the greatest potential impact (a one-sixteenth acre blast about 250 meters from the north property boundary for landfill blasting). For the annual AAQS, the total amount of blasting needed in each operational year was compiled with a weighted average into a single blast source near the centroid of the areas that could experience blasting. The results are shown in Tables 4-4 and 4-5. The potential NO_2 impacts are less than the relevant California or Federal standards.

Table 4-4
Maximum Potential 1-Hour Impact of NO_2
(in terms of ug/m^3)

Operational Year	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Meteorological Year	2002	2003	2003	2003	2003	2003
Maximum 1-hour Impact (1^{st}-High)	69.8	61.5	14.3	45.8	37.3	38.6
1^{st}-High 1-hour Background (California)	152	152	152	152	152	152
Total 1-hour Impact (California)	**221.8**	**213.5**	**166.3**	**197.8**	**189.3**	**190.6**
California AAQS	339	339	339	339	339	339
7^{th}-High 1-hour Background (Federal)	118	118	118	118	118	118
Total 1-hour Impact (Federal)	**187.8**	**179.5**	**132.3**	**163.8**	**155.3**	**156.6**
Federal AAQS	188	188	188	188	188	188

Table 4-5
Maximum Potential Annual Impact of NO_2
(in terms of ug/m^3)

Operational Year	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Meteorological Year	2003	2002	2002	2002	2002	2002
Maximum Annual Impact	0.03	0.001	0.3	0.6	0.7	0.8
Annual Background	34	34	34	34	34	34
Total Annual Impact	**34.0**	**34.0**	**34.3**	**34.6**	**34.7**	**34.8**
California AAQS	57	57	57	57	57	57
Federal AAQS	100	100	100	100	100	100

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Various sizes of blasts will be needed depending on the nature of the material being blasted and the distance of the blast from the property boundary. As a sensitivity analysis, different blast sizes (one-sixteenth, one-eighth, one-quarter, and one-half of an acre) were modeled in both the landfill area and Borrow/Stockpile Area B. The smallest blast size and distance to the property boundary were determined where the 1-hour federal NO_2 standard would still be protected (the Federal standard is more stringent than the California standard). Table 4-6 shows these minimum distances. The sensitivity model runs are included on the Appendix K compact disc.

Table 4-6
Minimum Blasting Distances

Blast Size	Minimum Distance from Northern Property Line for the Landfill Area (meters)	Minimum Distance from Western Property Line for Borrow/Stockpile Area B (meters)	Minimum Distance from Eastern Property Line for Borrow/Stockpile Area B (meters)
One-sixteenth acre	250	285	165
One-eighth acre	265	300*	175*
One-quarter acre	415	475*	275*
One-half acre	650	750*	430*

*For Borrow/Stockpile Area B, only the one-sixteenth acre scenario was modeled and the minimum distances determined. The distances for larger blasts were estimated from the ratio of distances at the Landfill Area compared to the Borrow/Stockpile Area B for one-sixteenth acre (e.g., 285 m for west end Borrow/Stockpile Area B divided by 250 m for Landfill Area at one-sixteenth acre times 265 m for Landfill Area one-eighth acre = 300 m for Borrow/Stockpile Area B one-eighth acre). Calculated values were rounded to the nearest 5 meters.

4.5 PARTICULATE MATTER IMPACT RESULTS

4.5.1 Landfill Operational Schedule

As stated in Volume IV and Volume VI of this air permit application, the landfill will operate Monday through Saturday, except for holidays, for a total of 307 days per year. During construction (Operational Years -2 and -1), it was assumed that construction would occur 10 hours per day (7:00 a.m. to 5:00 p.m.) on Monday through Friday and nine hours per day on Saturday (8:00 a.m. to 5:00 p.m.). During landfill operation (Operational Years 1 through 22), the landfill will operate for eleven hours per day (7:00 a.m. to 6:00 p.m.) on Monday through Friday and nine hours per day on Saturday (8:00 a.m. to 5:00 p.m.).

This operational schedule was incorporated into the dispersion model by using variable emission rates in the model. Since the years that were modeled were operational

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years, the emission sources were turned on in the model from 7:00 a.m. to 6:00 p.m., and turned off the rest of the hours for Monday to Friday. For Saturdays, the model was turned on from 8:00 a.m. to 5:00 p.m.; however, since the emission rates were calculated based on an eleven hour day, a source scaling factor of 1.22 (11 divided by 9) was used for the hours that the model was turned on. This is the same as modeling the amount of activity in an eleven hour day into a nine hour day for mass balance consistency, and is a conservative approach. Sundays were completely turned off in the model. The only exceptions to the above operational schedule were for flares, landfill gas and wind erosion. These sources were modeled as occurring 24 hours per day, 7 days per week, and 365 days per year.

As stated above, the landfill will operate for 307 days per year. However, with the model turned off on Sundays, 313 days per year are being modeled as the holidays cannot be accounted for in the model. Therefore, when annual emission rates were being calculated, it was assumed that emissions were occurring over 313 days instead of 307 for mass balance consistency. Again, this is a conservative approach in that six extra days are being considered in the model over actual operations.

Especially during construction and some of the operational years, it is not possible for all activities to occur at the maximum individual daily rate simultaneously. For example, the maximum daily amount of excavation is 10,000 cubic yards (cy) of material per day. On any given day, all of that material may be transported to only Borrow/Stockpile Area B, or some may be left in the landfill footprint and the remaining material transported to both of the borrow/stockpile areas, and/or blasting may occur. However, one would never conduct blasting of hard rock at the same time as moving blasted hard rock (i.e., shot rock) to one of the borrow/stockpile areas, or blasting would never occur at the same time as drilling holes for loading ANFO. Therefore, a sensitivity analysis was conducted for each combination of activities and, for example, in Operational Year -2, it was found that the maximum potential particulate matter impact occurs when there is a combination of (1) excavating and moving 5,000 cy of material to Borrow/Stockpile Area A, (2) excavating and moving 5,000 cy of material to the fill area for construction (no more than 5,000 cy of material will be moved to Borrow/Stockpile Area A in any given day), and (3) blasting one-quarter acre. In short, it was found that blasting creates more emissions than hauling hard rock to the borrow/stockpile areas. The worst case

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combination of operational impacts is shown in the model input files contained on the compact disc of Appendix K, and were used in this AQIA.

4.5.2 24-Hour and Annual Emission Calculations

In calculating 24-hour emissions, daily operational parameters were taken from Appendix F of Volume IV (GCL 2008a) of this air permit application. Daily vehicle miles traveled for the trash haul trucks were calculated from the maximum amount of waste that the landfill can accept (5,000 tons/day). Emissions for operations involving the movement of soil, such as excavation, unloading, and travel on stockpile roads, were calculated based on maximum daily equipment usages and maximum daily soil balances. Hourly emissions were typically calculated as the daily emission value divided by eleven operational hours per day.

Annual emissions were calculated using annual operational parameters that were taken from Appendix F of Volume IV (GCL 2008a) of this air permit application. Annual vehicle miles traveled for the trash haul trucks were calculated assuming the maximum daily amount of trash will be accepted each day the landfill is operating (5,000 tons/day x 307 days/year = 1,535,000 tons/year). Annual emissions for operations involving the movement of soil were based on annual soil balance needs rather than maximum daily equipment thresholds or daily soil balances.

Further, as part of the emission refinement for this AQIA, for both the annual and 24-hour emissions calculations, the "average" road lengths used in Volume IV of this permit application to calculate emissions were not used, rather the actual expected road lengths in each year were used.

4.5.3 Revised Modeling Parameters

Most of the modeling parameters for this Volume VII update were kept consistent with what was used in Volume VI of this air permit application; however, a few modeling parameters were revised to better represent the landfill operations and configuration. One of the parameters modified was the height of the trash haul trucks. Originally in Volume VI of this air permit application, all vehicles were estimated at a height of 15 feet; however, it was determined that a more accurate height estimate for trash haul trucks would be 10 feet. The scrapers that travel on the stockpile haul roads were set at a height of 12 feet.

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The results of the modeling are discussed in the following sections. The model input and output files are included electronically on the Appendix K compact disc, and these files show the UTM coordinates of the points of maximum impact.

4.5.4 PM_{10} Impact Results for 24-Hour AAQS

For the 24-hour impact assessment, for each operational year, the ten-highest modeled impact days were combined with the background concentrations on those days to calculate the maximum potential impact. The results are shown in Tables 4-7 through 4-12.

Table 4-7
Maximum PM_{10} Impacts for Operational Year -2

Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
Meteorological Year 2002				
1st	24.5	15.2	39.7	12/9/2002
2nd	16.6	19.3	35.9	1/17/2002
3rd	15.3	12.7	27.6	11/26/2002
4th	14.9	16.2	31.6	12/18/2002
5th	13.4	15.2	28.6	12/9/2002
6th	13.3	9.7	23.0	12/26/2002
7th	12.9	8.8	21.7	12/24/2002
8th	12.6	8.8	21.4	12/24/2002
9th	11.6	17.5	29.1	1/22/2002
10th	10.5	16.4	26.9	11/25/2002
Meteorological Year 2003				
1st	39.9	9.9	49.8	1/6/2003
2nd	32.7	15.5	48.2	11/26/2003
3rd	15.7	9.7	25.4	11/28/2003
4th	15.5	16.9	32.4	11/5/2003
5th	14.8	10.7	25.5	1/2/2003
6th	14.5	29.4	43.9	2/3/2003
7th	12.7	16.9	29.6	12/11/2003
8th	11.6	19.9	31.5	12/11/2003
9th	11.4	14.5	25.9	11/26/2003
10th	11.4	10.2	21.6	12/8/2003

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Table 4-8
Maximum PM_{10} Impacts for Operational Year 1

Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
Meteorological Year 2002				
1st	20.2	15.9	36.1	11/29/2002
2nd	16.4	15.9	32.3	11/27/2002
3rd	14.9	16.8	31.7	1/2/2002
4th	14.1	16.1	30.2	12/6/2002
5th	12.7	19.3	32.0	1/17/2002
6th	11.6	16.2	27.8	11/26/2002
7th	11.4	9.9	21.3	9/30/2002
8th	11.2	17.5	28.7	1/22/2002
9th	11.0	19.9	30.9	1/14/2002
10th	10.5	14.3	24.8	1/30/2002
Meteorological Year 2003				
1st	31.5	9.9	41.4	1/6/2003
2nd	28.3	9.9	38.2	1/6/2003
3rd	24.5	9.8	34.3	1/8/2003
4th	19.2	29.4	48.6	2/3/2003
5th	19.1	9.7	28.8	1/9/2003
6th	17.8	11.5	29.3	12/11/2003
7th	12.9	12.4	25.3	2/10/2003
8th	12.5	16.9	29.4	12/23/2003
9th	10.6	11.8	22.4	2/11/2003
10th	10.3	16.4	26.7	1/16/2003

Table 4-9
Maximum PM_{10} Impacts for Operational Year 8

Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
Meteorological Year 2002				
1st	12.7	15.9	28.6	11/29/2002
2nd	11.3	15.2	26.5	12/9/2002
3rd	8.4	8.8	17.2	12/24/2002
4th	7.8	16.4	24.2	12/5/2002
5th	7.7	13.8	21.5	2/1/2002
6th	7.1	11.5	18.6	12/19/2002
7th	6.9	11.5	18.4	12/19/2002
8th	6.8	11.5	18.3	12/19/2002

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Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
9th	6.2	16.4	22.6	12/2/2002
10th	6.1	12.7	18.8	12/18/2002
Meteorological Year 2003				
1st	13.1	15.5	28.6	11/26/2003
2nd	10.6	9.9	20.5	1/6/2003
3rd	9.3	16.9	26.2	12/26/2003
4th	8.9	9.8	18.7	1/8/2003
5th	7.5	14.5	22.0	1/14/2003
6th	7.3	15.1	22.4	12/2/2003
7th	7.1	12.3	19.4	12/9/2003
8th	7.1	10.1	17.2	1/3/2003
9th	7.0	15.1	22.1	12/2/2003
10th	7.0	16.9	23.9	12/17/2003

Table 4-10
Maximum PM_{10} Impacts for Operational Year 17

Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
Meteorological Year 2002				
1st	13.4	15.9	29.3	11/29/2002
2nd	12.7	15.9	28.6	11/29/2002
3rd	10.0	8.8	18.8	12/24/2002
4th	8.8	16.4	25.2	12/5/2002
5th	8.1	13.8	21.9	2/1/2002
6th	8.0	10.1	18.1	12/27/2002
7th	7.8	19.3	27.1	1/17/2002
8th	7.1	11.5	18.6	12/19/2002
9th	7.0	16.4	23.4	12/2/2002
10th	6.8	16.4	23.2	12/2/2002
Meteorological Year 2003				
1st	15.1	9.8	24.9	1/8/2003
2nd	14.6	10.7	25.3	1/10/2003
3rd	12.0	9.7	21.7	1/9/2003
4th	11.6	29.4	41.0	2/3/2003
5th	8.9	11.5	20.4	12/11/2003
6th	8.7	16.9	25.6	12/24/2003
7th	8.5	16.9	25.4	12/23/2003

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Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
8th	8.3	9.9	18.2	1/6/2003
9th	7.8	9.9	17.7	1/6/2003
10th	7.8	29.4	37.2	2/3/2003

Table 4-11
Maximum PM_{10} Impacts for Operational Year 22

Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
Meteorological Year 2002				
1st	20.9	15.2	36.1	12/9/2002
2nd	16.3	16.4	32.7	12/2/2002
3rd	14.5	16.4	30.9	12/2/2002
4th	14.3	10.1	24.4	12/27/2002
5th	12.8	13.4	26.2	11/18/2002
6th	12.0	15.9	27.9	11/29/2002
7th	11.4	27.7	39.1	11/6/2002
8th	11.0	27.7	38.7	11/6/2002
9th	10.9	8.4	19.3	12/23/2002
10th	10.4	15	25.4	12/13/2002
Meteorological Year 2003				
1st	29.2	15.5	44.7	11/26/2003
2nd	18.8	24	42.8	1/24/2003
3rd	16.2	9.7	25.9	1/9/2003
4th	14.7	12.4	27.1	12/12/2003
5th	14.4	15.5	29.9	11/26/2003
6th	13.8	16.9	30.7	12/24/2003
7th	13.0	23.1	36.1	1/23/2003
8th	12.7	15.5	28.2	11/26/2003
9th	12.6	16	28.6	12/16/2003
10th	12.2	23.1	35.3	1/23/2003

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Table 4-12
Maximum PM_{10} Impacts for Operational Year 23

Rank	Model Impact ($\mu g/m^3$)	Daily Background ($\mu g/m^3$)	Combined Impact ($\mu g/m^3$)	Date
Meteorological Year 2002				
1st	21.9	15.9	37.84	11/27/2002
2nd	13.9	16.2	30.07	11/26/2002
3rd	12.4	16.4	28.83	11/25/2002
4th	11.0	19	29.98	1/18/2002
5th	9.0	12.7	21.69	12/18/2002
6th	8.8	14.3	23.15	1/30/2002
7th	8.8	16.4	25.16	11/25/2002
8th	8.3	15.2	23.54	12/9/2002
9th	7.7	14.5	22.23	1/29/2002
10th	7.6	19	26.64	1/18/2002
Meteorological Year 2003				
1st	35.3	9.9	45.21	1/6/2003
2nd	29.5	15.5	45.03	11/26/2003
3rd	13.8	9.8	23.65	1/8/2003
4th	13.1	9.8	22.91	1/7/2003
5th	11.5	10.2	21.73	1/1/2003
6th	11.3	10.2	21.51	1/1/2003
7th	8.7	17.3	26.03	1/17/2003
8th	8.6	16.9	25.47	12/22/2003
9th	7.9	17.3	25.22	1/17/2003
10th	7.6	16.9	24.55	12/23/2003

The maximum PM_{10} impact occurs in Operational Year -2 and is 49.8 ug/m^3 compared to the most stringent AAQS of 50 ug/m^3 (California).

4.5.5 PM_{10} Impact Results for Annual AAQS

The maximum annual PM_{10} impacts are shown in Table 4-13. The maximum impact occurs in Operational Year 22 with 2003 meteorology and is 19.9 ug/m^3 compared to the most stringent AAQS of 20 ug/m^3 (California).

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Table 4-13
Maximum Potential Annual Impact of PM_{10}
(in terms of ug/m^3)

Operational Year	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Meteorological Year	2003	2003	2003	2003	2003	2003
Maximum Annual Impact	1.8	1.8	1.5	1.7	2.3	1.6
Annual Background	17.6	17.6	17.6	17.6	17.6	17.6
Total Annual Impact	**19.4**	**19.4**	**19.1**	**19.3**	**19.9**	**19.2**
California AAQS	20	20	20	20	20	20
Federal AAQS	None	None	None	None	None	None

4.5.6 $PM_{2.5}$ Impact Results for 24-Hour AAQS

The maximum 24-hour $PM_{2.5}$ impacts are shown in Table 4-14. The maximum impact occurs in Operational Year -2 with 2003 meteorology and is 23.8 ug/m^3 compared to the most stringent AAQS of 35 ug/m^3 (Federal). (Note that the maximum combined impact in Table 4-14 is the 1st-high modeled impact plus the 1st-high background, which is much more conservative methodology than required for the Federal standard, which is stated as a 3-year average 98th percentile.)

Table 4-14
Maximum Potential 24-Hour Impact of $PM_{2.5}$
(in terms of ug/m^3)

Operational Year	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Meteorological Year	2003	2003	2003	2002	2003	2003
Maximum 24-Hour Impact	8.3	7.5	3.6	3.7	7.6	6.1
24-hour Background	15.5	15.5	15.5	15.5	15.5	15.5
Total Annual Impact	**23.8**	**23.0**	**19.1**	**19.2**	**22.1**	**21.6**
California AAQS	None	None	None	None	None	None
Federal AAQS	35	35	35	35	35	35

Note: The Federal AAQS is a 98th percentile standard. But for purposes of this table, the maximum first-high values are shown.

4.5.7 $PM_{2.5}$ Impact Results for Annual AAQS

The maximum annual $PM_{2.5}$ impacts are shown in Table 4-15. The maximum impact occurs in Operational Year 22 with 2003 meteorology and is 7.9 ug/m^3 compared to the most stringent AAQS of 12 ug/m^3 (California).

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Table 4-15
Maximum Potential Annual Impact of $PM_{2.5}$
(in terms of ug/m^3)

Operational Year	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Meteorological Year	2003	2003	2003	2003	2003	2002
Maximum 24-Hour Impact	0.4	0.5	0.5	0.5	0.7	0.5
Annual Background	7.2	7.2	7.2	7.2	7.2	7.2
Total Annual Impact	**7.6**	**7.7**	**7.7**	**7.7**	**7.9**	**7.7**
California AAQS	12	12	12	12	12	12
Federal AAQS	15	15	15	15	15	15

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5.0 SUPPLEMENTAL HEALTH RISK ASSESSMENT

Volume VI of this permit application, submitted in May 2008 and updated in October 2008, presented a detailed Health Risk Assessment (HRA) for all potential toxic emissions from the landfill, including fugitive landfill gas, landfill gas flare emissions, and potential mineral and metal content of particulate emissions associated with handling native soils at the project site during landfill operations. However, the HRA was prepared using the ISC dispersion model and a pre-December 2008 "express" version of the HARP model. In December 2008, OEHHA published new RELs (chronic and acute) for six chemicals, four of which, arsenic, manganese, formaldehyde, and mercury, are potentially emitted from the proposed project. In addition, the previous HRA used the BAS landfill gas generation model. Therefore, the HRA had to be updated. The HRA was conducted using the emissions discussed in Section 3 of this document and shown in the Appendices, plus the most current version of the HARP model as of August 2010. HARP model runs are included on the Appendix K compact disc. HARP model runs were conducted for all six operational years.

5.1 HARP MODEL SETTINGS

The HARP model was run with the settings required by the SDAPCD. Specifically the model settings include the following:

- Applied the most current pollutant and health database (health.mdb February 2009) for the RELs and cancer risk factors.
- For Residential exposure, the exposure pathways were enabled for inhalation, home grown produce (at 0.15 ingestion fractions), dermal absorption, soil ingestion, and mothers milk;
- There is no still water bodies near the proposed landfill site, nor any meaningful source of aquatic food, and thus the water pathway was not included for residential or worker receptors;
- For Worker exposure, the exposure pathways were enabled for inhalation, dermal absorption and soil ingestion;
- Applied a Deposition Rate of 0.5 m/s
- Applied the "Derived (Adjusted) Cancer Risk" adjustment in accordance with the Air Resources Board Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk, dated October 9, 2003; and

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- Applied worker exposure adjustment factors to reflect the operating schedule as 24/11 hrs/day x 7/6 days per week = 2.545, except for Operational Year -2 where the operating schedule was 24/10 hrs/day x 7/6 days per week = 2.8.

5.2 HARP MODEL RESULTS

5.2.1 Potential Cancer Risk and Hazard Indices

The HARP model results for Operational Years -2, 1, 8, 17, 22, and 23 are shown in Table 5-1 for 2002 meteorology and Table 5-2 for 2003 meteorology. The results for the chronic and acute hazard indices are well below the threshold of concern (hazard index of 1.0).

Table 5-1
HARP Model Results for 2002 Meteorology

Criteria	Location	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Cancer Risk ($\times 10^{-6}$)	MEIR	7.5	29.5	6.1	7.7	11.0	12.8
	Receptor	18	82	43	45	44	43
	MEIW	2.8	10.8	1.1	3.4	4.4	4.6
	Receptor	46	46	46	46	46	46
Chronic HI	MEIR	0.15	0.21	0.12	0.10	0.08	0.15
	Receptor	18	82	43	43	18	18
	MEIW	0.10	0.18	0.07	0.10	0.07	0.10
	Receptor	46	46	46	46	46	46
Acute HI	MEIR	0.02	0.03	0.03	0.10	0.14	0.14
	Receptor	47	47	44	80	44	27
	MEIW	0.03	0.02	0.02	0.10	0.12	0.12
	Receptor	46	46	46	20	20	20

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Table 5-2
HARP Model Results for 2003 Meteorology

Criteria	Location	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Cancer Risk ($\times 10^{-6}$)	MEIR	8.0	31.8	6.8	8.4	11.8	13.7
	Receptor	18	82	43	45	44	43
	MEIW	3.0	12.0	1.3	3.8	5.1	5.2
	Receptor	46	46	46	46	46	46
Chronic HI	MEIR	0.15	0.22	0.12	0.11	0.05	0.09
	Receptor	18	82	43	43	18	18
	MEIW	0.10	0.19	0.08	0.11	0.08	0.11
	Receptor	46	46	46	46	46	46
Acute HI	MEIR	0.03	0.05	0.03	0.10	0.14	0.14
	Receptor	18	41	43	111	14	27
	MEIW	0.03	0.05	0.02	0.11	0.13	0.12
	Receptor	46	46	46	19	19	20

The cancer risk results presented in Tables 5-1 and 5-2 assume a continuous 70-year exposure. However, as the Tables show, the impact for each operational year is highly variable as it is a function of operations in any given year. Operational Years -2, -1 and 1 are construction years (including in Year 1 the start of refuse disposal). Therefore, the potential cancer risk for those years only last one year each and are caused by on-site diesel emissions. The potential cancer risk in Operational Years 17, 22 and 23 is from flare operations during the peak of landfill gas generation (peak landfill gas generation is Year 23). However, landfill gas generation reaches a peak in only a single year, and for other years it starts as zero (little or no refuse has been decomposed in the first year and all of the refuse has been decomposed in the last year). Furthermore, after 23 years the landfill has reached capacity and is closed, therefore, there are no further diesel emissions. Accordingly, the potential cancer risk results in Tables 5-1 and 5-2 must be interpreted in light of the variability in operations and landfill gas generation rates.

For the Maximum Exposed Individual Residential (MEIR) receptor, two different analyses were conducted to identify the 70-year period that results in the largest total potential cancer risk. First, an analysis was conducted to identify the 70-year period

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that included the maximum amount of landfill gas emissions and associated risk. The results of that analysis are as follows:

1. Appendix K provides the result of the landfill gas generation model based on SDAPCD parameters. The maximum landfill gas generation occurs in Year 23, and is 3.649×10^4 megagrams methane. The entire distribution of landfill gas generation in the model was evaluated to find the maximum total 70 years of landfill gas generation. The maximum total 70 years generation occurred from Year 8 through 77. This total was 1.601×10^6 megagrams methane, or an average landfill gas generation rate over 70 years of 2.287×10^4 megagrams methane per year. Thus, the dose over 70 years is 2.287×10^4 divided by 3.649×10^4, or 0.627 (63 percent) of the peak, and the potential cancer risk over 70 years is 63 percent of the cancer risk if the maximum landfill gas generation rate occurred for 70 years.

2. Meteorological year 2003 yields the maximum potential cancer risk. In Year 23, the total maximum cancer risk from Table 5-2 is 13.7×10^{-6}. Diesel particulate is responsible for 2.4×10^{-6} of the total, and 11.3×10^{-6} is from landfill gas and particulate matter emissions during facility closure. The landfill gas is responsible for most of the risk.

3. If one assumed that all of the non-diesel risk in Year 23 is from landfill gas, then the 70-year risk from landfill gas for Year 8 through 78 is 0.627 times 11.3×10^{-6}, or 7.1×10^{-6} risk. This is a conservative over-estimate since part of the 11.3×10^{-6} risk is from particulate matter emissions that will not occur beyond Year 23.

4. The diesel-only risk in Year 8 is 5.7×10^{-6}, Year 17 it is 2.8×10^{-6}, Year 22 it is 2.1×10^{-6}, and Year 23 it is 2.4×10^{-6}, or an average diesel risk of 3.3×10^{-6}. However, this risk only occurs for 15 years (Years 8 through 23). The equivalent 70-year diesel risk is, therefore, 3.3×10^{-6} times 15 divided by 70, or 0.7×10^{-6}.

5. The total 70-year cancer risk is, therefore, 7.1×10^{-6} (landfill gas and particulate) plus 0.7×10^{-6} (diesel), or 7.8×10^{-6}.

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The second analysis was similar, but included Year -2, Year -1, and Years 1 through 68. The results of that analysis are as follows:

1. Appendix K provides the result of the landfill gas generation model based on SDAPCD parameters. The maximum landfill gas generation occurs in Year 23, and is 3.649×10^4 megagrams methane. The total landfill gas generated from Year -2 through Year 68 is a total of 1.491×10^6 megagrams methane, or an average landfill gas generation rate over 70 years of 2.130×10^4 megagrams methane per year. Thus the dose over 70 years is 2.130×10^4 divided by 3.649×10^4, or 0.584 (58 percent) of the peak, and the potential cancer risk over 70 years is 58 percent of the cancer risk if the maximum landfill gas generation rate occurred for 70 years.

2. Meteorological year 2003 yields the maximum potential cancer risk. In Year 23, the total maximum cancer risk from Table 5-2 is 13.7×10^{-6}. Diesel particulate is responsible for 2.4×10^{-6} of the total, and 11.3×10^{-6} is from landfill gas and particulate matter emissions during facility closure. The landfill gas is responsible for most of the risk.

3. If one assumed that all of the non-diesel risk in Year 23 is from landfill gas, then the 70-year risk from landfill gas for Year -2 through Year 68 is 0.584 times 11.3×10^{-6}, or 6.6×10^{-6} risk. This is a conservative over-estimate since part of the 11.3×10^{-6} risk is from particulate matter emissions that will not occur beyond Year 23.

4. The diesel-only risk in Year 8 is 5.7×10^{-6}, Year 17 it is 2.8×10^{-6}, Year 22 it is 2.1×10^{-6}, and Year 23 it is 2.4×10^{-6}, or an average diesel risk of 3.3×10^{-6}. However, this risk only occurs for 15 years (Years 8 through 23). The equivalent 70-year diesel risk is, therefore, 3.3×10^{-6} times 15 divided by 70, or 0.7×10^{-6}.

5. The non-landfill gas risk for Year -2 is 8.0×10^{-6}, but this occurs only for one year, so the 70-year risk is 8.0×10^{-6} divided by 70, or 0.11×10^{-6}. It is assumed that Year -1 will have the same risk as Year -2, i.e., 0.11×10^{-6}.

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6. The Year 1 non-landfill gas risk is 31.8 x 10^{-6}, but for only 1 year, or 0.45 x 10^{-6} over 70 years.

7. For Years 2 through 7, it was conservatively assumed (overestimated) that the Year 8 diesel-only risk occurred, or 5.7 x 10^{-6} divided by 70 times 6 years, or 0.49 x 10^{-6}.

8. The sum of the individual risks over 70 years is therefore, 6.6 x 10^{-6} plus 0.7 x 10^{-6} plus 0.11 x 10^{-6} plus 0.11 x 10^{-6} plus 0.45 x 10^{-6} plus 0.49 x 10^{-6}, or a total of 8.46 x 10^{-6}.

The maximum total 70-year cancer risk from the proposed project, including construction, is 8.5 x 10^{-6}.

A similar analysis could be conducted for the Maximum Exposed Individual Worker receptor (MEIW). However, the MEIW results are all well less than 10 x 10^{-6} for all years except Operational Year 1. The average potential cancer risk shown in Table 5-2 for the MEIW over the 23 years of operation plus the construction Years of -2 and -1, even assuming that the maximum landfill gas generation rate occurs for the entire 46 year worker exposure duration is 5.1 x 10^{-6}. The maximum risk is less than this value due to the same reasons as discussed for the MEIR.

5.2.2 Potential Lead Health Effects

To address this lead threshold, special lead-only AERMOD runs were conducted. OEHHA has published a method for evaluating potential health effects from lead emissions based on a 30-day average impact and a threshold of of 0.12 ug/m^3 over 30 days. The method is based on calculating annual lead emissions but then assuming that all of those emissions could be emitted in a 30-day period. Then the AERMOD model is run with lead emissions only over a 30-day averaging period during the hours of operation. The AERMOD model does not do rolling 30-day averages, only monthly averages. However, if the maximum 24-hour average is less than the threshold, certainly the 30-day average will be also. The resulting maximum modeled impact is then compared to the 0.12 ug/m^3 threshold. The maximum 24-hour average lead impact was found to be 0.006 ug/m^3 for meteorological year 2002 and 0.007 ug/m^3 for

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meteorological year 2003, which is less than 6 percent of the threshold, or a Hazard Index of less than 0.06. The model runs for this procedure are included in the Appendix K compact disc.

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6.0 SUMMARY

This document is an update that replaces Volume VII of the permit application which includes an updated AQIA for NO_2, CO, and PM_{10} and $PM_{2.5}$, and an update to the HRA to address more refined emission estimates, more recent advances in dispersion modeling and new RELs published by OEHHA. The AQIA emission estimates and modeling methodology are consistent with extensive discussions held with the SDAPCD.

The analysis showed that the maximum ambient impacts of NO_2, PM_{10}, and $PM_{2.5}$, including worst-case background concentrations, are less than both Federal and California ambient air quality standards. The analysis also showed that even with the new, more stringent RELs, the maximum health risks at the maximally exposed off-site worker and resident are less than thresholds of concern.

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Air Quality, Health Risk, and Noise Technical Memorandum
(Addendum to the Certified Final Environmental Impact Report for Gregory Canyon Landfill)

Prepared by:

Hagmann Environmental Services, LLC.
Mark Hagmann, P.E.

April 2011

AIR QUALITY, HEALTH RISK, AND NOISE TECHNICAL MEMORANDUM

The purpose of this technical memorandum is to evaluate and identify any new potential air quality, health risk, and noise impacts based on refinements to the project that were not identified in the 2003 Draft EIR, the Revised Final Environmental Impact Report (RFEIR), the 2008 Addendum to the Certified Final Environmental Report (2008 Addendum), the 2009 Addendum to the Certified Final Environmental Report (2009 Addendum), or the 2010 Addendum to the Certified Final Environmental Report (2010 Addendum) (collectively, the "CEQA Documents"). It has been determined herein that none of the conditions requiring preparation of a Subsequent or Supplemental EIR have occurred related to air quality, health risk, or noise impacts.

BACKGROUND

CEQA Documents

The Final Environmental Impact Report (FEIR) for the Gregory Canyon Landfill was certified and approved on February 6, 2003. The adequacy of the FEIR was subsequently challenged in a case entitled Riverwatch, et al. v. County of San Diego Department of Environmental Health, et al.; San Diego County Superior Court Case No. GIN038227 (CEQA Litigation). On October 3, 2005, the Court issued a final minute order finding most of the Final EIR certified on February 3, 2003 (FEIR) adequate and in compliance with CEQA but indicating that revisions to the FEIR were required:

- To evaluate new traffic information contained in a 2003 County tribal traffic study known as the 2003 Traffic Needs Assessment Study;
- To identify the sources of water necessary to construct and operate the landfill and to analyze the impacts of obtaining that water; and
- To assure that biological mitigations for the project were consistent with Section 5R of Proposition C.

On January 20, 2006, the Court issued a writ of mandate ordering decertification of the FEIR and requiring additional environmental review to address the three areas noted by the Court in its October 2, 2005 minute order.

Petitioners appealed the January 20, 2006 decision of the trial court, asserting that the FEIR was deficient in other respects. The Court of Appeal affirmed the order of the trial court on June 12, 2009. Riverwatch, et al. v. County of San Diego Department of Environmental Health, et al., 4th Appellate District, Div. 1, Case No. D048259.

In addition to revising the FEIR to address the matters contained in the Court's order, the RFEIR included other discussions and analyses. The project description was revised to reflect the fact the project will include a double composite liner with an additional drainage layer and an additional high-density polyethylene (HDPE) geomembrane and to describe recycled water facilities that will be included in the facilities area. A discussion was added to the land use section discussing the Countywide Siting Element adopted by the California Integrated Waste Management Board in September 2005, and analyzing the project's consistency with this new Siting Element. The traffic section was revised to

discuss a new traffic study that was completed in 2006. The noise section was updated based upon new traffic and noise studies completed in 2006. The biological resources section was updated to reevaluate impacts of the project to upland habitat for the arroyo toad, to reanalyze project impacts to vegetation communities, to reevaluate project traffic noise to sensitive habitat, and to revise mitigation measures. The archaeology and cultural resources section and the ethnohistory and Native American interests section were revised to include a discussion of project impacts associated with the potential future nomination of Gregory Mountain and Medicine Rock as historic resources eligible for inclusion in the National Register of Historic Places.

The RFEIR was certified by the Director of the LEA on May 31, 2007. The RFEIR consists of the FEIR, a Revised Partial Final Environmental Impact Report (which includes public comments and recommendations on the Revised Partial Draft EIR, and County of San Diego, Department of Environmental Health (LEA) responses to significant environmental points raised in those public comments and recommendations), and supporting technical documentation.

On June 1, 2007, the LEA filed a motion to discharge the writ of mandate, which was granted in part and denied in part in a minute order dated February 11, 2008. The court ruled that the analysis provided in the RFEIR satisfied the requirements of the writ of mandate, with the exception that additional analysis was required with respect to impacts on current users of the identified source of recycled water.

The 2008 Addendum was drafted to respond to the court's minute order. LEA determined that the conditions requiring preparation of a Subsequent of Supplemental EIR did not exist, and the 2008 Addendum was adopted by the Director of the LEA on August 8, 2008. On August 14, 2008, a second motion was filed to discharge the writ of mandate, which was granted by the trial court in a minute order dated November 20, 2008.

Petitioners appealed this ruling, and challenged both the February 11, 2008 minute order and the November 20, 2008 minute order. The Court of Appeal affirmed the orders of the trial court on March 30, 2010. Riverwatch, et al. v. County of San Diego Department of Environmental Health, et al., 4th Appellate District, Div. 1, Case No. D054471.

While the above motions and appellate matters were pending, Petitioners filed a separate action, Riverwatch, et al. v. Olivenhain Municipal Water District, San Diego County Superior Court Case No. GIN054668, challenging one of the water sources identified in the RFEIR, a contract for delivery of recycled water from the Olivenhain Municipal Water District (OMWD). The trial court upheld the recycled water contract, but the Court of Appeal issued a decision overturning the trial court on January 9, 2009. Riverwatch, et al. v. Olivenhain Municipal Water District, 4th Appellate District, Div. 1, Case No. D052237. Subsequent to the Court of Appeal decision, OMWD determined that it would no longer proceed with a recycled water contract.

As a result, the 2009 Addendum was prepared to identify alternative sources of water for the project and to evaluate potential environmental impacts from the use of those sources. LEA determined that the conditions requiring preparation of a Subsequent of Supplemental EIR did not exist, and the 2009 Addendum was adopted by the Director of the LEA on January 7, 2010. The identified sources of water for the landfill include on-site riparian water and percolating groundwater, and trucked recycled water from the San Gabriel Valley Water Company (SGVWC).

On January 13, 2010, the U.S. Army Corps of Engineers issued a new jurisdictional determination for the project, finding that the landfill site included more waters of the U.S. than was previously determined in 2004. The 2010 Addendum was prepared to ensure that the project's environmental review was consistent with the 2010 jurisdictional determination, and to analyze whether there were any environmental impacts associated with the updated jurisdictional determination. LEA determined that the conditions requiring preparation of a Subsequent of Supplemental EIR did not exist, and the 2010 Addendum was adopted by the Director of the LEA adopted on May 7, 2010.

Project Modifications

In order to undertake the analysis required under CEQA Guidelines § 15162, the LEA identified all changes to the project or the circumstances under which the project is undertaken that have not been previously disclosed or analyzed in the CEQA Documents. These items are provided in Table 1.

Table 1 was based on a review of documents previously submitted to LEA, as well as additional documentation that included information obtained from Gregory Canyon, Ltd, and comment letters received by LEA. Most of the changes were undertaken or proposed in connection with obtaining other permits or approvals for the project, or to comply with the requirements of other authorities having jurisdiction over the project.

IMPACT ANALYSIS

Potential air quality, health risk, and noise impacts related to items provided in Table 1 were evaluated using a tiered approach, in which items were screened out that would clearly not result in changes or have the potential to substantially change the significance conclusions in the FEIR. All other items in Table 1 were carried forward in this evaluation, where a more detailed discussion or analysis was conducted to determine whether any changes to the significance conclusions in the FEIR could occur.

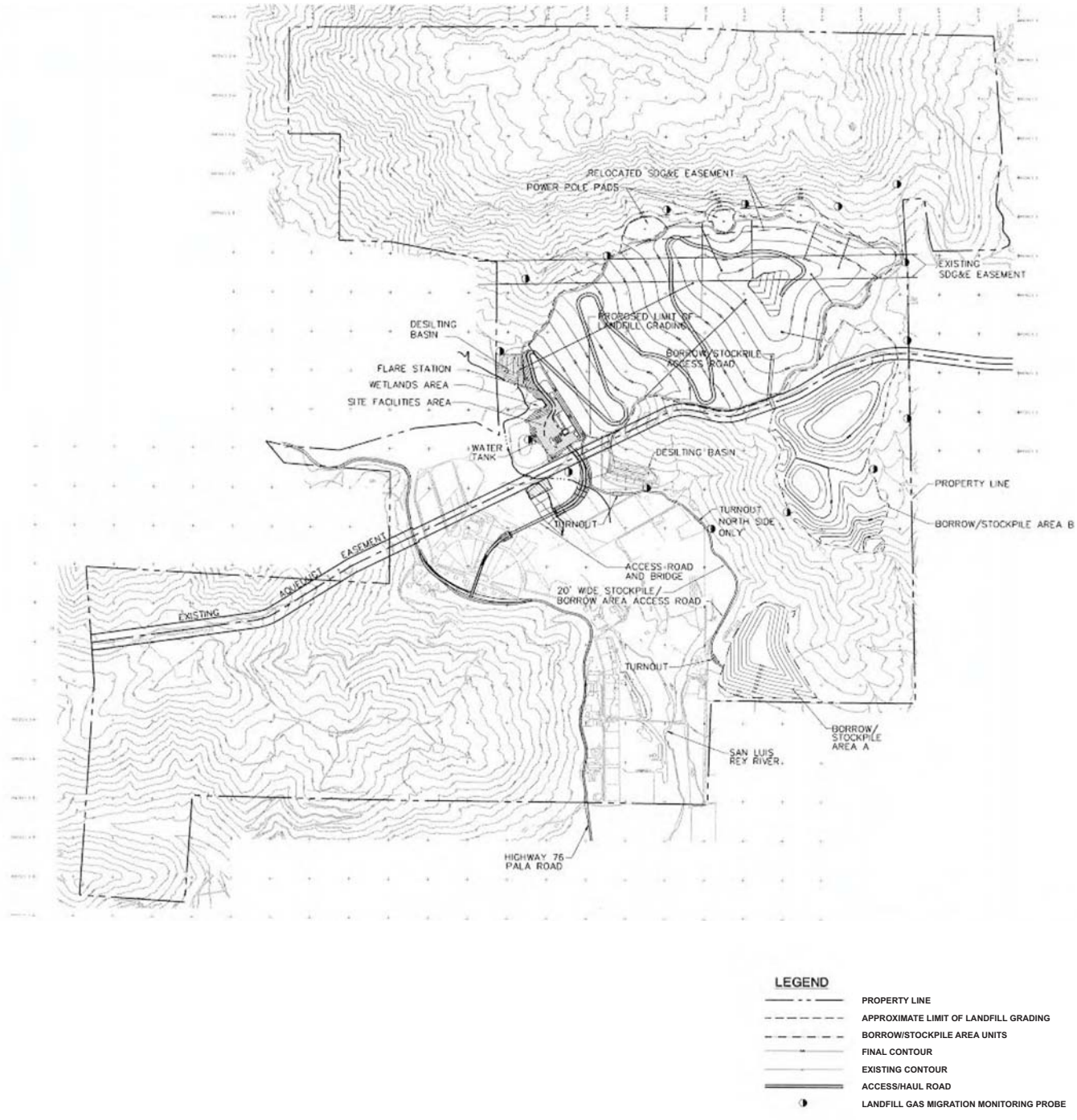
Air Quality and Health Risk

As discussed above, potential air quality and health risk impacts were evaluated based on refinements to the project that were not evaluated in previous CEQA Documents. A site diagram is provided as Figure 1 for reference to specific project features discussed below.

ITEMS REQUIRING NO FURTHER ANALYSIS

The changes identified in Items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, and 23 in Table 1 would either result in less potential air quality and health risk impacts from the project, or the change in potential impact would be inconsequential or not significant. A discussion of each item follows below.

Item 1 – Potential air quality and health risk impacts related to habitat creation and enhancement of riparian areas were previously evaluated in the FEIR. The Biological Technical Report included as Appendix B of the RFEIR concluded that the increase in the extent of habitat creation or enhancement from 88.0 acres to 212.6 acres would not result in any secondary impacts (e.g., air quality and health risk) to biological resources because the mitigation would continue to be implemented in accordance with the project biologist. Likewise, the relatively smaller increase from 212.6 acres to 241.6 acres would continue to be implemented in accordance with the project biologist. As noted in Appendix D of the



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Source: PCR Services Corporation, 2008

Figure 1

Site Location Map

Table 1

Summary of Changes to Project or Circumstances Under Which the Project is Undertaken That Have Not Been Previously Disclosed or Analyzed in the CEQA Documents

Item #	Current Project Feature/Description	Project Feature/Description Described in Previous CEQA Documents
1	Potential 166.0 acres of habitat creation, 75.6 acres of enhancement of riparian areas	155.5 acres of habitat creation, 57.1 acres of enhancement of riparian areas
2	Approximately 30.8 million tons of refuse capacity	Approximately 33.43 million tons of refuse capacity
3	Initial temporary facilities, such as scales and structures, and sanitary facilities, will be replaced during later years of project operation	No discussion of temporary vs. permanent facilities
4	A bridge, approximately 681 feet in length, supported by five large diameter piers.	A bridge, approximately 640 feet in length, with five sets of two piles each (for a total of ten piles).
5	Charge of specification of purchased clay liner material, to pre-conditioned at the clay mine to a specified moisture content.	Not included
6	Traffic Director/Spotter = 2; Recycled Water Supervisor = 1; Total = 22	Traffic Director/Spotter = 1; No Recycled Water Supervisor; Total = 20
7	The use of ADC has been shown to reduce refuse-to daily/intermediate cover ratios from 4:1 to 7:1, The use of ADC has been shown to reduce refuse-to daily cover ratios from 4:1 to at least 7.5:1.	The use of ADC has been shown to reduce refuse-to-daily cover ratios from 4:1 to 7:1.
8	Assuming a 4:1 cover ratio, approximately 11.4 million cubic yards (mcy) would be needed for daily operations during the life of the landfill. An additional 2.7 mcy of material will be necessary to provide for canyon shaping, the operations layer and final cover over for the site. The total anticipated soil requirement, including cover, would be 14.1 mcy. The proposed landfill development will include the excavation of approximately 7.9 mcy within the landfill footprint, of which approximately 4.9 mcy consists of topsoils, alluvium/colluvium, or weathered bedrock and rippable hard rock that would be suitable for cover material with limited processing required, primarily crushing of the rippable hard rock.	The quantity of excavated rock and soil material would be about 7.93 million cubic yards (mcy), of which 1.48 mcy would be used in the formation of the landfill bottom prior to placement of the containment system. This alternative would reduce total excavation for the project by approximately 3.5 mcy in comparison to the proposed project. Approximately 6.44 mcy of rock and soil material would be available from the refuse footprint area and 4.5 mcy would be available from the stockpile/borrow areas for use as final, intermediate and daily cover soil. The amount of cover material needed for daily, intermediate, and final cover is estimated at 12.7 mcy.
9	26 groundwater monitoring wells surrounding the landfill.	In addition to the 13 monitoring wells surrounding the landfill, the water quality monitoring shall include at a minimum monitoring of two production wells (downgradient SLRMWD well #34 and upgradient Lucio well #2), upgradient alluvial monitoring well GMW-3, and downgradient alluvial monitoring well GLA-16 located within the project boundary).
10	14 permanent gas migration monitoring probes, and 2 temporary probes.	15 gas migration monitoring probes.
11	Installation of a 12-foot high litter fence along the bridge deck to control litter from waste collection vehicles from reaching the San Luis Rey River.	Not included
12	The drainage control system for the GCLF will consist of a variety of treatment BMP's, which	This system will consist of a buried drainage pipe, engineered grading, drainage berms, downdrains, and

Item #	Current Project Feature/Description	Project Feature/Description Described in Previous CEQA Documents
	may include perimeter drainage systems for the open channels (for adjacent area run-on) and buried pipe (for run-off from the landfill footprint), drainage berms, downdrains, energy dissipaters, desilting basins, drainage swales, structural media filtration, bio-treatment swales and percolation areas.	energy dissipaters, and two desilting basins.
13	The surface water drainage control system for the GCLF is designed to accommodate a 100-year, 24-hour storm event run-off volumes and the volume of water caused by a simultaneous rupture of the existing Pipeline 1 and 2 and the future Pipeline 6.	The surface water drainage control facilities are designed to carry 100-year, 24-hour storm event runoff volumes.
14	Estimated leachate generation would peak at 9,246 gallons per day.	Estimated leachate generation of 9,245 gallons per day.
15	The excavation plan provides overall interior slope gradient will be 2:1 and the flatter bottom areas will have a minimum gradient of 5 percent.	The bottom area of the footprint will be graded to drain northerly at a minimum gradient of three percent
16	Updated phasing/excavation plan for Phases I, II, III and IV.	Phasing/excavation plan for proposed landfill, not selected alternative.
17	There are 26 bedrock monitoring wells within the proposed landfill footprint and along the periphery of the site.	There are 20 bedrock monitoring wells within the proposed landfill footprint and along the periphery of the site.
18	Excavation contours between 380 and ~925 feet	The lowest depths of excavation for the Prescriptive Design with a Double Liner Alternative range from between approximately 400 feet above mean sea level (amsl) at the northern toe of excavation to approximately 700 feet amsl at the southern toe.
19	Addition of granular activated carbon treatment modules to the reverse osmosis (RO) water treatment plant.	RO treatment only
20	H.G. Fenton mining operating has closed	H.G Fenton mining operation described as land use in the area of the proposed landfill that contributes traffic on SR 76 and other road segments.
21	Opening of MX raceway in former Calmat (Vulcan) mine on Pala Reservation.	Calmat (Vulcan) mining operation described as landfill use that contributes traffic on SR 76 and other road segments.
22	Facility located within the boundaries of the recently-created San Diego County Fire Authority.	Facility located within the sphere of influence of the North County Fire protection District.
23	The LEA cooperates in a regional HHW program efforts, which is a multifaceted program to reduce illegal and harmful disposal of HHW. As indicated in Chapter 5 of the 2005 County Integrated Waste Management Plan, a major portion of collected HHW is reused or recycled and is thus diverted from landfill or other disposal sites. Source reduction, a form of waste prevention, is promoted through public education on alternatives to toxic products. Components of the regional HHW program efforts include collection, load check, disposal and treatment, recycling, reuse, source reduction, education, and public information. The regional HHW	Not included

Item #	Current Project Feature/Description	Project Feature/Description Described in Previous CEQA Documents
	program has nine permanent HHW collection facilities with periodic temporary HHW Collection Facility events, and door-to-door pick ups for elderly and disabled residents. Over 90 percent of the HHW collected in the County is either recycled or reused. In addition, one of the key elements of the HHW programs in the region is ongoing education and public information directed toward increasing public awareness.	
24	Continued use of existing Herzog storage yard on former Lucio Dairy for temporary storage of construction materials and equipment, until such time as habitat restoration is implemented on this area	Not included

Source: LEA, 2011.

RFEIR, the increase in acreage would not increase the amount or intensity of work on any construction day given the need to protect biological resources, but rather would extend the time required to complete the work. No additional analysis is required.

Item 2 – The reduction of refuse disposal capacity from 33.4 million tons analyzed in the FEIR to 30.8 million tons would result in a slight reduction in overall fugitive landfill gas emissions (carbon monoxide (CO) and volatile organic compounds (VOCs) and related toxic air contaminants (TACs)) and combustion emissions associated with the landfill flare system. No additional analysis is required.

Item 3 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. Replacement of temporary facilities would occur during future years of operation in conjunction with ongoing liner development. This replacement would not take place as part of initial construction, where the level of construction activity and potential impacts are expected to be their greatest. Since pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, this additional relatively minor construction would not be expected to result in increased air quality or health risk impacts. To the extent that there are any additional truck trips related to construction of replacement facilities, those would be subject to daily and hourly traffic restrictions (i.e., less than a total of 2,085 PCE trips per day), which is consistent with the passenger-car-equivalent (PCE) trips analyzed in the FEIR. No additional analysis is required.

Item 4 – The air quality and health risk analyses conducted for the FEIR included construction activities associated with bridge construction as part of initial construction. The slight increase in length (approximately six percent) and the change from ten piles to five large diameter piles would not result in a change in the amount or intensity of work on any construction day given the need to protect biological resources, but rather could slightly extend the time required to complete the work. Traffic trip limitations would apply to any materials deliveries. It is important to note, that the amount of excavation needed for bridge construction would be less, since excavation to lower the channel in the San Luis Rey River has been eliminated. Therefore, the revised bridge design could result in slightly less fugitive dust emissions over the duration of bridge construction. No additional analysis is required.

Item 5 – Air quality and health risk impacts from the use of pre-conditioned clay would be inconsequential, since the same volume of clay for liner construction would still be required. To the extent that there are any additional truck trips, traffic trip limitations would apply to any materials deliveries. In addition, this project feature has the potential to reduce fugitive dust emissions at the project site as the clay material would meet a specified moisture content prior to handling the material on site. No additional analysis is required.

Item 6 – The increase of two additional employees could potentially increase air pollutant emissions from the project as a result of vehicle trips associated with the employees. However, the project is subject to daily and hourly traffic restrictions as discussed in Item 3. Therefore, the two additional employees would not result in any additional trips or pollutant emissions not disclosed in the FEIR. No additional analysis is required.

Item 7 – The refuse-to-daily cover ratio can be increased slightly through some modifications in operating activities. This would not be a significant change from operations as described in the FEIR. The use of alternative daily cover (ADC) was identified and analyzed in the FEIR. The biggest change would be to sequence filling in a way to minimize the need for intermediate cover, which would utilize soil. As a result, careful fill sequencing would result in less soil excavation at the borrow-stockpile areas and less on-site transportation and placement of cover soil. Thus, this project feature would result in a slight reduction in overall fugitive dust emissions and combustion emissions from heavy-duty equipment than analyzed in the FEIR. No additional analysis is required.

Item 8 – The total volumes of soil required for cover and canyon shaping decrease from 14.2 million cubic yards (mcy) to 14.1 mcy. No change in the estimated capacity of soil stockpile areas would occur based on this change. As a result of the decrease in soil, the project would result in a corresponding slight reduction in overall fugitive dust emissions and combustion emissions from heavy-duty equipment than what was analyzed in the FEIR. Please refer to Item 16 for a detailed discussion of potential air quality and health risk impacts related to the updated phasing/excavation plan for Phases I, II, III and IV.

Item 9 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. Construction of additional monitoring wells would be part of initial construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. As an example, the drilling rig used for bridge construction could be used to install the additional monitoring wells. There would be no increase in the amount or intensity of work on any construction day and construction of additional wells would not be anticipated to substantially extend the time to complete the work. The additional monitoring wells would be located in close proximity to the 13 monitoring wells identified in Previous Documentation and the wells would not be considered a long-term emissions source.[1] Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 10 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. The installation of 14 permanent and 2 temporary gas monitoring probes has a negligible difference from installation of

[1] *Geo-Logic Associates, Workplan for Additional Groundwater Monitoring Well Installation and Wellhead Protection Area Identification at the Proposed Gregory Canyon Landfill Site, 2011.*

15 permanent probes. Construction of gas monitoring probes would be part of initial construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. There would be no increase in the amount or intensity of work on any construction day, but construction of additional probes might extend the time to complete the work. The additional probes would be located in the same areas where other construction would be occurring. Traffic trip limitations would apply to any materials deliveries. The slight re-design of the gas monitoring system will enhance the ability to detect releases of landfill gas. As such, no additional analysis is required.

Item 11 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. Construction of litter fencing along the bridge deck would be part of initial construction. The height of the fence will be approximately 12 feet above a 3 foot concrete barrier on the bridge for a total height of 15 feet. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. Also, because of its location, construction of litter fencing would not increase the amount or intensity of work on any construction day given the need to protect biological resources, but rather would extend the time required to complete the work. Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 12 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. Construction of additional storm water control features would be part of initial construction and would primarily be carried out as part of grading activities. No construction would be required for the percolation basins, which would utilize existing topography and soil characteristics. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. The additional storm water control features would be located in the same areas where other construction would be occurring. Also, given the location of these additional facilities, their construction would not increase the amount or intensity of work on any construction day given the need to protect biological resources, but rather would extend the time required to complete the work. Traffic trip limitations would apply to any materials/equipment deliveries. As such, no additional analysis is required.

Item 13 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. In order to accommodate higher flows in the western perimeter drain, the size of the drains would be relatively larger, with more shaping of the foundation and more concrete. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. The larger sizing would not result in an increase in the amount or intensity of work on a given work day, but might extend the time required to construct the western perimeter drain. The perimeter drains are located in the same areas where other construction would be occurring. Although additional pre-mixed concrete delivery truck trips would be necessary for the improvements, hourly and daily traffic trip limitations would apply to any materials/equipment deliveries and would therefore not result in any additional daily trips. As such, no additional analysis is required.

Item 14 – The estimated peak leachate generation per day is estimated to be only one gallon per day higher than estimated and analyzed in the FEIR, which is inconsequential and would not result in an increase of fugitive landfill gas emissions or combustion emissions associated with the landfill flare system. No additional analysis is required.

Item 15 – The excavated gradient within the landfill footprint would change slightly to better facilitate the removal of leachate. However, as noted in the discussion of Item 8, the total amount of excavation for specified construction activities, including canyon shaping, is less than estimated in the FEIR. With that being said, please refer to Item 16 for a detailed discussion of potential air quality and health risk impacts related to the updated phasing/excavation plan for Phases I, II, III and IV.

Item 17 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. Construction of the additional bedrock monitoring wells would be part of initial construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. As an example, the drilling rig used for bridge construction could be used to install the additional monitoring wells. There would be no increase in the amount or intensity of work on any construction day and construction of additional wells would not be anticipated to substantially extend the time to complete the work. The additional six monitoring wells would be located in close proximity to the 20 monitoring wells identified in previous CEQA Documentation and the wells would not be considered a long-term emissions source.[2] Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 18 – The excavation contour for northern toe would change from approximately 400 feet above mean sea level (amsl) to 380 feet amsl, which is inconsequential. The difference at the southern toe between 700 feet amsl and approximately 925 feet amsl represents a substantial reduction in depth of excavation. The change in elevations would not result in a change in air quality and health risk impacts as the maximum daily activity associated with excavation activities (e.g., quantity excavated and use of heavy-duty construction equipment) would not change in comparison to excavation activities analyzed in the FEIR. In addition, as noted in Item 8, the total amount of excavation for specified construction activities is less than estimated in the FEIR. With that being said, please refer to Item 16 for a detailed discussion of potential air quality and health risk impacts related to the updated phasing/excavation plan for Phases I, II, III and IV.

Item 19 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential air quality and health risk impacts from construction of additional features on the landfill property. A reverse osmosis treatment plant was described in the FEIR as part of initial construction. Additional granular activated carbon (GAC) treatment canisters would be added. GAC adsorption technology is a proven technology for removal of VOCs from groundwater and is often used as a water purification technology for removal of VOCs from drinking water. The major components of the GAC treatment system for the project would include: (1) influent equalization tank; (2) two influent electric transfer pumps; (3) pre-filtration system; (4) two 2,000 pound GAC vessels; and (5) an effluent surge tank. From a construction standpoint, the system would require limited use of heavy-duty construction equipment for installation. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. The additional equipment would be located in the same areas where other construction would be occurring. Traffic trip limitations would apply to any equipment deliveries. It is important to note that the addition of the GAC canisters would allow for effective treatment of a broader range on contaminants that might be released from the landfill

[2] *Geo-Logic Associates, Workplan for Additional Groundwater Monitoring Well Installation and Wellhead Protection Area Identification at the Proposed Gregory Canyon Landfill Site, 2011.*

and captured in the pumping wells and would not be considered a long-term source of air pollutant emissions. As such, no additional analysis is required.

Item 20 – H.G. Fenton quarry is no longer operational and would not result in any direct changes in potential air quality and health risk impacts identified in the FEIR and RFEIR. However, since the quarry is no longer operational it would serve to reduce truck trips along State Route (SR) 76 and fugitive dust emissions and combustion emissions from the use of heavy-duty equipment at the quarry site. Thus, a slight improvement in pollutant concentrations in the vicinity of the quarry and the project site could occur. In addition, the results of the CO modeling conducted in the FEIR and RFEIR for intersections in the project vicinity would be considered conservative since truck trips associated with H.G. Fenton quarry were included in the traffic analyzed. No additional analysis is required.

Item 21 – The Calmat (Vulcan) quarry is no longer operational and would not result in any direct changes in potential air quality and health risk impacts identified in the FEIR and RFEIR. However, the property has been modified and converted to be operated as a 240-acre motocross raceway under a long-term lease between MX Motocross Raceway and the Pala Tribe identified as the Pala Raceway. According to San Luis Rey Watershed Council (SLRWC) Meeting Minutes, dated 5/22/2008, Kirk Chandler (Pala Raceway/MX Raceway) presented that "There are no plans for large "Spectator Events", like those held at the Carlsbad Raceway; if this changes there will be multiple traffic studies done…".[3] Additionally, it was presented that the raceway traffic would be limited to approximately 196 vehicles per day (on a 30-day schedule) and would be substantially less than Vulcan Mining which was more than 230 trucks per day. While large spectator events at this site were not contemplated according to the SLRWC Meeting Minutes, if spectator events were to occur, they would only occur sporadically and typically on weekends when landfill traffic is lower and would have a minimal contribution to ADT. In addition, MX Raceway traffic may not constitute a significant increase over ADT generated overall from operation of the Pala Casino. When weighing the ADT generated by the MX Raceway against the ADT decreases attributable to the closing of the H.G. Fenton and Calmat (Vulcan) quarries, the overall change in traffic is inconsequential. As discussed above for Item 22, the results of the CO modeling conducted in the FEIR and RFEIR for intersections in the project vicinity would be considered conservative since truck trips associated with H.G. Fenton and Calmat (Vulcan) quarries were included in the traffic analyzed. No additional analysis is required.

Item 22 – All local fire protection authorities operate under a mutual aid agreement. Regardless of which authority is providing service, response will occur from the nearest fire station first, with other more distant fire stations participating as needed. As a result, there would be no changes in the significance conclusions for air quality and health risk impacts identified in the FEIR. No additional analysis is required.

Item 23 – LEA programs to divert household hazardous waste (HHW) prior to placement in waste receptacles reduces the potential for delivery of HHW to the landfill. While it is not easily quantifiable, the reduction of HHW to the landfill would potentially further reduce air toxic emissions released from the landfill. As a result, there would be no changes in the significance conclusions for air quality and health risk impacts identified in the FEIR. No additional analysis is required.

[3] *http://www.projectcleanwater.org/pdf/slrwc/slrwc_minutes_05-22-08.pdf*

ITEMS REQUIRING FURTHER DISCUSSION/ANALYSIS

The changes identified in Items 16 and 24 in Table 1 could potentially result in increased air quality and health risk impacts from the project and, therefore, a detailed discussion/analysis is provided below demonstrating that the proposed changes would not result in any changes in the significance conclusions provided in the FEIR.

Item 16

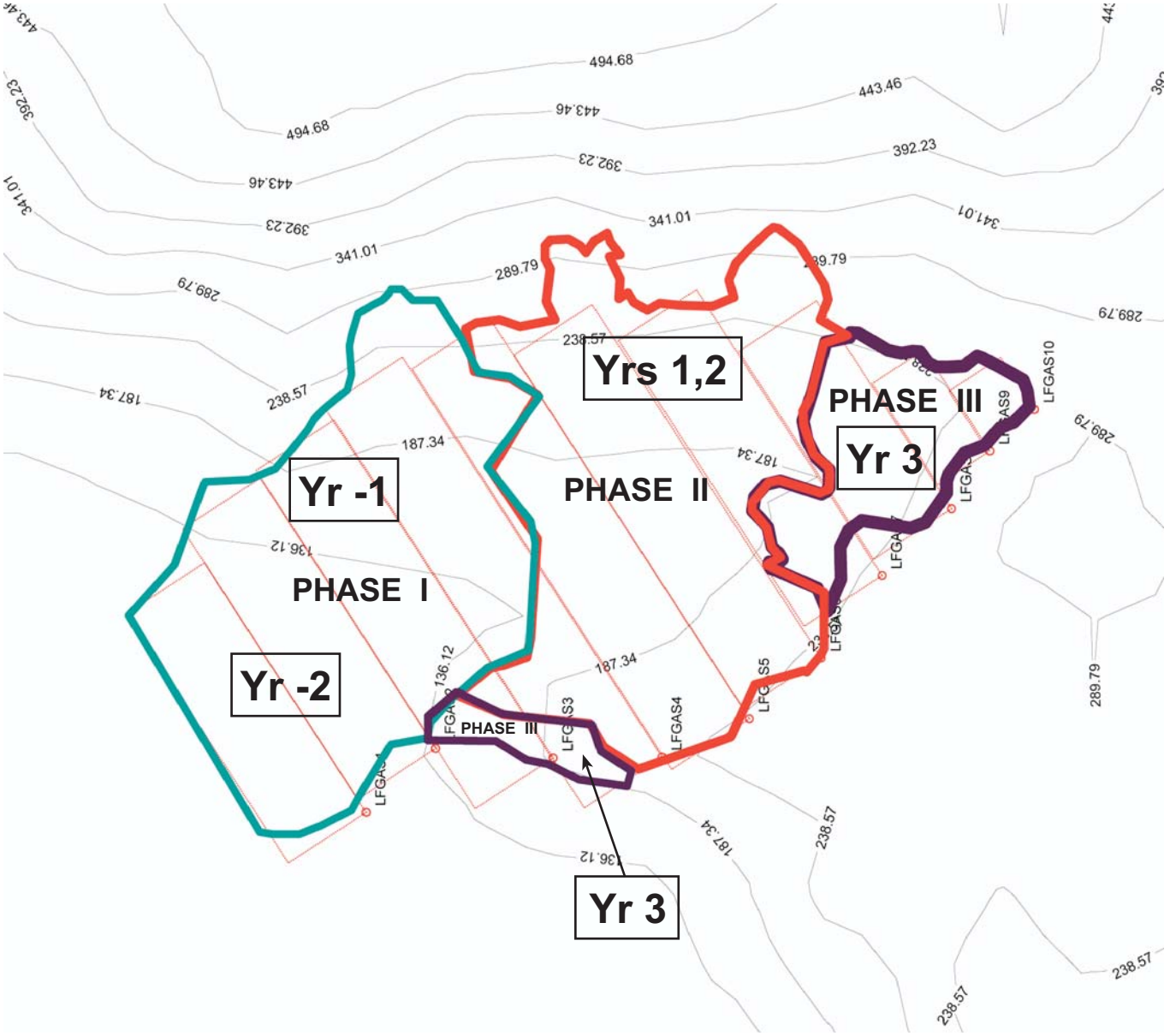
The phasing/excavation plan for Phases I, II, III and IV were modified subsequent to the analysis performed for the FEIR and is presented in Figure 2. The size of different phases within the landfill footprint might be smaller or larger than estimated in the FEIR, but the overall footprint would remain the same. An Air Quality Impact Analysis (AQIA) required by San Diego County Air Pollution District (SDAPCD) under SDAPCD New Source Review (NSR) was performed and addressed the changes in the phasing/excavation plan as well as refinements to emission factors and control efficiencies developed in consultation with SDAPCD. Important refinements to the analysis are discussed below. The AQIA analyzed criteria and toxic air contaminant emissions from the project using air dispersion modeling and evaluated air quality impacts that project emissions could have on State and National Ambient Air Quality Standards (AAQS). A summary of the AQIA findings is provided below and compared against the findings of the FEIR to demonstrate that the revisions to the phasing/excavation plan would not result in any new air quality and health risk impacts not previously disclosed in previous CEQA Documentation.

Changes in Phasing/Excavation Plan and Analysis Refinements

Phasing and Analysis Years

The air quality and health risk analyses provided in the FEIR were conducted for three scenarios, which addressed the worst-case emissions over the life of the landfill. The three scenarios consisted of initial construction, worst-case periodic construction (Year 19 of Operation), and post-periodic construction worst-case operational phase (Year 30 of Operation) of the facility. Based on the revised phasing/excavation plan and that the landfill would accept waste for a minimum of 22 years, the AQIA addressed the following scenarios: (1) initial construction prior to waste acceptance in closest proximity to fenceline (Year -1 of Operation for CO and Year -2 for all other Pollutants); (2) first year that waste is received (Year 1 for all Pollutants except CO); (3) second year that waste is received (Year 2 for CO); (4) operation in which construction (e.g., excavation and preparation of the next cells) is expected to occur simultaneously with waste acceptance and generate maximum PM10 emissions (Year 8 of Operation); (5) operations where one landfill gas model indicates maximum landfill gas generation rates and corresponding emissions (Year 17 of Operation); (6) first year of closure activities when the final cover soil will be transported from Stockpile A and used to cover the landfill (Year 22 Pollutants except CO); and (7) year in which a different landfill gas generation model indicated maximum landfill gas generation (Year 23). Both the FEIR and the AQIA addressed scenarios that would be anticipated to result in the maximum potential air quality and health risk impacts. Please refer to the SDAPCD Permit Application, Volume IV-Annual Emissions Inventory for the Gregory Canyon (Permit Application Volume IV).[4]

[4] GCLF, SDAPCD Air Quality Permit Application, Volume IV-AEI, May 2008



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NOT TO SCALE

Source: PCR Services Corporation, 2008

Figure 2

Landfill Construction Phases

Dispersion Model

Consistent with SDAPCD guidance, air quality analyses conducted for the FEIR used the Environmental Protection Agency's (EPA's) most recent version of the Industrial Source Complex Short-Term model, Version 3 (ISCST3). Subsequent to completion of the FEIR, SDAPCD now recommends use of EPA's most recent version of the AMS/EPA Regulatory Model (AERMOD) and was used for purposes of the project's AQIA. AERMOD was specially designed to support the EPA's regulatory modeling programs. AERMOD is currently the preferred air dispersion model of the EPA and is now being used for appropriate application as a replacement for ISCST3. As of December 9, 2006, AERMOD is fully promulgated as a replacement to ISCST3 in accordance with Appendix W of the Federal Register 40 CFR Part 51. The model is used to assess pollutant concentrations at sensitive receptors from a wide variety of industrial type sources (point source and area sources). AERMOD is considered a more robust model than ISCST3 and provides more accurate estimates of pollutant concentrations.

Meteorological Data

The dispersion modeling analyses conducted in the FEIR were based on three years of records of hourly meteorological data collected at Miramar Marine Corps Station. These data sets, which were compiled from concurrent surface and upper air measurements during 1993, 1994 and 1995, were recommended by the SDAPCD for modeling studies involving sources in non-coastal sites within San Diego County and where on-site meteorological data was not available. Subsequent to completion of the FEIR, two years of sequential hourly meteorological data was collected at the landfill site. The proximity of the monitoring station to the proposed landfill activities provides a set of meteorological data that is more representative of the local topographic features and wind regime than any other air quality stations in San Diego County. The establishment and operation of the monitoring station followed the *Gregory Canyon Landfill Air Quality Monitoring Plan*, which was reviewed and approved by the SDAPCD.[5]

Background Concentrations

Background ambient monitoring data for the air quality analysis conducted for the FEIR was based on the most representative SDAPCD air quality monitoring station (Escondido) for the most recent available five year monitoring period (1996-2000). The East Valley Parkway air quality monitoring station located in Escondido is 16 miles south of the site and is located at 600 East Valley Parkway, Escondido. This station monitors ozone, CO, PM_{10}, $PM_{2.5}$ and NO_2.

Subsequent to completion of the FEIR, two years of meteorological and ambient air quality (PM_{10} only) monitoring data were collected on site for the calendar year 2002 and 2003. PM_{10} monitoring was conducted once every six days per the USEPA protocol and included a primary and co-located sampler. In order to determine the pre-project background concentrations of PM, the on-site PM_{10} data were coupled with additional PM_{10} and $PM_{2.5}$ monitoring data for calendar years 2002 through 2008 (2009 data were not available) at the Aqua Tibia Wilderness Area located approximately 10 miles northeast of the project site. More details are provided in *SDAPCD Permit Application Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill* (Permit Application Volume VII).[6] Background CO and NO_2 concentrations used in the AQIA were based on the maximum concentrations collected for the most recent available five year monitoring period (2005-2009)

[5] *SAIC, Gregory Canyon Landfill Air Quality Monitoring Plan, June 2001.*

[6] *Kleinfelder, SDAPCD Air Quality Permit Application, Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, 2010.*

at the Escondido monitoring station. A summary of the background concentrations used in the FEIR and AQIA, along with the California and National AAQS (CAAQS and NAAQS) are shown in Table 2. As shown in Table 2, air quality within the project area (Northern San Diego County) has improved and ambient background concentrations have decreased substantially.

Emission Factors and Additional Control Measures

Given that the AQIA was conducted approximately a decade after the analysis for the FEIR was completed, many of the emission factors for on-road vehicles and off-road equipment used for the FEIR have since changed and do not reflect more recent federal and State mandates (e.g., Federal Corporate Average Fuel Economy standards, Assembly Bill 1493, and Low Carbon Fuel Standard). On-road vehicle emissions presented in the FEIR were calculated using URBEMIS 7G, which was based on CARB's EMFAC 7G emission factors. While these versions of the models were the most current at the time of preparation of the FEIR, the current versions of the models are URBEMIS 2007 and EMFAC 2007. A screening analysis has been conducted using URBEMIS 2007 to demonstrate that on-site on-road emissions from delivery and trash truck trips have decreased substantially in comparison to numbers presented in the FEIR. A summary of emissions from maximum daily trash operations used in the FEIR (625 trips) for Year 2020 is presented in Table 3. As shown in Table 3, pollutant emissions decrease 58 percent for VOC, 40 percent for NO_X, 90 percent for CO, and 15 percent for PM_{10}.

The FEIR used emissions factors from the 1993 *SCAQMD CEQA Air Quality Handbook* for off-road construction equipment (e.g., scrapers, bull dozers, and compactors). As with on-road emission factors, the emission factors were considered industry standard at the time of completion of the FEIR. However, they do not reflect more recently promulgated federal and State mandates. The first federal standards (Tier 1) for new nonroad (or off-road) diesel engines were adopted in 1994 for engines over 37 kW (50 hp), to be phased-in from 1996 to 2000. In 1996, a Statement of Principles (SOP) pertaining to nonroad diesel engines was signed between EPA, California ARB and engine makers. On August 27, 1998, the EPA signed the final rule reflecting the provisions of the SOP. The 1998 regulation introduced more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. On May 11, 2004, the EPA signed the final rule introducing Tier 4 emission standards, which are to be phased-in over the period of 2008-2015 [69 FR 38957-39273, 29 Jun 2004]. The Tier 4 standards require that emissions of PM and NO_X be further reduced by about 90 percent. The SCAQMD provides mitigation measure tables located at the following website: http://www.aqmd.gov/ceqa/handbook/mitigation/offroad/MM_offroad.html. According to Table II-D, Off-road Engine Emission Rates and Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates, Tier 2 equipment greater than 175 hp compared to Tier 1 equipment would result in a reduction of 33 percent for NO_X, 76 percent for VOC, and 63 percent for PM; Tier 3 in comparison to Tier 1 results in a reduction of 59 percent for NO_X, 85 percent for VOC, and 63 percent for PM; Tier 4 in comparison to Tier 1 results in a reduction of 96 percent for NO_X, 86 percent for VOC, and 96 percent for PM. The AQIA calculates off-road emissions using engine ratings and load factors consistent with CARB's OFFROAD 2007 model and emission factors consistent with Tier 2 equipment. Thus, the pollutant emissions from off-road equipment calculated in the AQIA are substantially less than emissions presented in the FEIR.

As part of the initial permit application for the landfill, the applicant must demonstrate that the design meets the requirements of Best Available Control Technology (BACT) and Toxic Best Available Control Technology (T-BACT) under SDAPCD New Source Review (NSR) regulations. Based on a review of available control applications, the project has committed to implementing extensive state-of-the-art

Table 2
Ambient Air Quality Data

Pollutant	Averaging Time	CAAQS	NAAQS	FEIR[6]	AQIA[7]
PM_{10} (µg/m^3)	24-hour	50	150	65	36.9
PM_{10}(µg/m^3)	Annual	20[1]	None[2]	30.0	17.6
$PM_{2.5}$ (µg/m^3)	24-hour	None	35[3]	65.9	15.5
$PM_{2.5}$ (µg/m^3)	Annual	12[3]	15.0	17.4	7.2
CO (ppm)	1-hour	20	35	11.2	5.9
CO (ppm)	8-hour	9.0	9	7.1	3.6
NO_2 (µg/m^3)	1-hour	339[4]	None	225.6	152
NO_2 (µg/m^3)	1-hour (98th percentile over three year average or 7th Highest Concentration)	None	188[5]	None	118
NO_2 (µg/m^3)	Annual	57[4]	100	43	34

1 *The CAAQS for PM_{10} (Annual) was reduced from 30 µg/m^3 to 20 µg/m^3 subsequent to completion of the 2003 FEIR.*
2 *The NAAQS for PM_{10} (Annual) of 50 µg/m^3 was revoked in 2006.*
3 *The NAAQS for $PM_{2.5}$ (24-hour) was reduced from 65 µg/m^3 to 35 µg/m^3 and a CAAQS for $PM_{2.5}$ (annual) of 12 µg/m^3 was promulgated subsequent to completion of the 2003 FEIR.*
4 *Effective March 20, 2008, the State of California Office of Administrative Law changed the 1-hour NO_2 standard from 0.25 ppm (470 µg/m^3) to 0.18 ppm (339 µg/m^3) and established a new annual NO_2 standard.*
5 *Effective April 12, 2010 the United States Environmental Protection Agency (USEPA) set a new 1-hour NO_2 standard at 0.10 parts per million (188 µg/m^3). To attain this standard, the three-year average of the 98th percentile of the daily maximum 1-hour average must not exceed 0.1 ppm.*
6 *Background ambient air pollutant concentrations were based on data from the Escondido monitoring station for the period from 1996 to 2000.*
7 *Background ambient air pollutant concentrations were based on on-site monitoring data for PM_{10} and $PM_{2.5}$ plus monitoring data from the Aqua Tibia and Escondido monitoring stations.*

Source: GCLF Final EIR, 2003 and Kleinfelder, SDAPCD Air Quality Permit Application, Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, 2010.

control measures to reduce air quality impacts from the project beyond those contemplated in the FEIR.[7] Some of the more notable measures are discussed below. To control emissions of VOC from the landfill, a landfill gas (LFG) collection system with minimum collection efficiency on 90 percent will be installed. The collected LFG will be routed to enclosed flare(s) capable of at least 99 percent destruction efficiency. Roads will be paved, covered with crushed rock, chemically stabilized, or watered frequently to control PM and TAC emissions. The applicant is committing to achieving 95 percent control by utilizing frequent or intense watering, treatment with magnesium chloride or polymer emulsion products, or other methods that achieve T-BACT performance standards on all unpaved roads. Please refer to *SDAPCD Air Quality Permit Application, Volume II: Best Available Control technology Report for the Gregory Canyon Landfill* (Permit Application Volume II) for a complete list of the additional control measures.

7 *GCLF, SDAPCD Air Quality Permit Application, Volume II-Best Available Control Technology Report for the Gregory Canyon Landfill, 2008.*

Table 3
Trash Operations

URBEMIS Version	VOCG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)
URBEMIS 7G	30.9	87.0	294.3	2.6
URBEMIS 2007	13.1	46.6	27.8	2.2
Reduction	17.8	40.4	266.5	0.4
Percent Reduction	58%	40%	90%	15%

[1] *Assumptions provided in Appendix K, Air Quality, of the Final EIR for Year 2020 (maximum trips of 625, trip length of 4.5 miles, and maximum speed of 10 miles per hour)*

Source: GCLF Final EIR, 2003 and Hagmann Environmental Services, 2011.

Summary of AQIA

Criteria Pollutants

As with the FEIR, the emission inventory prepared for the Permit Application (Volume IV) demonstrated that an AQIA was necessary to evaluate air quality impacts for CO, NO_2, and PM_{10} based on hourly, daily, and annual emissions of those pollutants. Therefore, several scenarios based on worst-case operating years were analyzed. A summary of the results of the AQIA are provided in Tables 4 through 7. These tables also provide the modeling results from the FEIR for comparison purposes. The results of the AQIA presented in Tables 4 and 5 demonstrate that the revised phasing/excavation plan for the landfill would not result in exceedances of NO_2 and CO CAAQS and NAAQS. This finding is consistent with Final EIR.

The results of the AQIA for PM_{10} are presented in Table 6, in which the maximum potential impact is presented as the highest modeled impact day combined with the background concentration measured on the project site on those days to calculate the maximum potential impact. As shown in Table 6, PM_{10} impacts for the revised phasing/excavation plan are well within the impacts disclosed in the FEIR.

The results of the AQIA for $PM_{2.5}$ are presented in Table 7. As shown in Table 7, the revised phasing/excavation plan would not result in exceedances of $PM_{2.5}$ CAAQS or NAAQS. It should be noted that at the time of preparation of the FEIR, SDAPCD did not have a trigger level of emissions requiring an analysis of $PM_{2.5}$ impacts nor were there accepted methodologies to calculate $PM_{2.5}$ emissions/concentrations. Instead, the FEIR used potential PM_{10} impacts as a surrogate to disclose whether the project could result in potential $PM_{2.5}$ impacts. Based on this approach, the pollutant concentrations for $PM_{2.5}$ calculated in the AQIA are well below the PM_{10} concentrations presented in the FEIR.

Health Risk Assessment

As with the Final EIR, a comprehensive health risk assessment was prepared for the Permit Application (Volume VII) and addressed the revised phasing/excavation plan. The detailed HRA addressed potential toxic emissions from the landfill, including fugitive landfill gas, landfill gas flare emissions, diesel particulate, and potential mineral and metal content of particulate emissions associated with handling native soils at the project site during landfill operations. The results of the analysis for Operational Years

Table 4
Summary of Air Quality Impacts for 1-Hour and Annual NO_2 (µg/m3)

AQIA[1]	Operational Year					
	Year -2	**Year 1**	**Year 8**	**Year 17**	**Year 22**	**Year 23**
Maximum 1-hour Impact (1st High)	69.8	61.5	14.3	45.8	37.3	38.6
1st High Background (California)	152	152	152	152	152	152
Total 1-hour Impact (California)	**221.8**	**213.5**	**166.3**	**197.8**	**189.3**	**190.6**
California AAQS	339	339	339	339	339	339
7th High Background (National)	118	118	118	118	118	118
Total 1-hour Impact (National)	**187.8**	**179.5**	**132.3**	**163.8**	**155.3**	**156.6**
National AAQS	188	188	188	188	188	188
Maximum Annual Impact	0.03	.001	0.3	0.6	0.7	0.8
Annual Background	34	34	34	34	34	34
Total Annual Impact	**34.0**	**34.0**	**34.3**	**34.6**	**34.7**	**34.8**
California AAQS	57	57	57	57	57	57
National AAQS	100	100	100	100	100	100
Final EIR[2]	**Operational Year**					
	Year -1	**19**	**30**			
Maximum 1-hour Impact (1st High)	95.9	206.8	37.6			
1st High Background (California) (1997)	225.6	225.6	225.6			
Total 1-hour Impact (California)	**321.5**	**432.4**	**263.2**			
California AAQS[3]	470	470	470			
Maximum Annual Impact	11.4	1.9	1.9			
Annual Background	43.2	43.2	43.2			
Total Annual Impact	54.6	45.1	45.1			
National AAQS[4]	100	100	100			

[1] *Tables 4.1 and 4.2 of Permit Application (Volume VII).*
[2] *Tables 4.7-7, 4.7-12, and 4.7-13 of Section 4.7, GCLF FEIR.*
[3] *The 1-hour NO_2 standard at the time of preparation of the Final EIR was 0.25 ppm (470 µg/m^3).*
[4] *The National AAQS of 100 µg/m^3 was the only annual NO_2 standard at the time of preparation of the Final EIR.*

Source: GCLF Final EIR, 2003 and Kleinfelder, SDAPCD Permit Application, Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, 2010.

-2, 1, 8, 17, 22, and 23 are shown in Table 8. The results for the chronic and acute hazard indices are well below the threshold of concern (hazard index of 1.0) as was the case in the FEIR.

The cancer risk results for the AQIA presented in Table 8 assume a continuous 70-year exposure. The impact for each operational year is highly variable as it is a function of operations in any given year. As

Table 5
Summary of Air Quality Impacts for 1-hour and 8 hour CO (ppm)

AQIA[1]	Operational Year		
	Year -2	**Year 2**	**Year 17**
Maximum 1-hour Impact	13.8	5.0	0.05
1st High Background	5.9	5.9	5.9
Total 1-hour Impact	**19.7**	**10.9**	**5.9**
California AAQS	20.0	20.0	20.0
National AAQS	35	35	35
Maximum 8-hour Impact	1.7	0.4	0.02
1st High Background	3.6	3.6	3.6
Total 8-hour Impact	**5.3**	**4.0**	**3.6**
California AAQS	9.0	9.0	9.0
National AAQS	9	9	9
Final EIR[2]	**Operational Year**		
	Year -1	**19**	**30**
Maximum 1-hour Impact	0.5	6.2	0.4
1st High Background	11.2	11.2	11.2
Total 1-hour Impact	**11.7**	**17.4**	**11.6**
California AAQS	20.0	20.0	20.0
National AAQS	35	35	35
Maximum 8-hour Impact	0.1	0.8	0.1
1st High Background	7.1	7.1	7.1
Total 8-hour Impact	**7.2**	**7.9**	**7.2**
California AAQS	9.0	9.0	9.0
National AAQS	9	9	9

[1] *Table 4-2 of Permit Application (Volume V)*
[2] *Tables 4.7-7, 4.7-12, and .7-13 of Section 4.7, GCLF EIR.*

Source: GCLF Final EIR, 2003 and PCR Services Corporation, SDAPCD Permit Application, Volume V: Air Quality Impact Analysis for the Proposed Gregory Canyon Landfill, February 2008.

an example, Operational Years -2, -1 and 1 are construction years (including in Year 1 the start of refuse disposal) and the potential cancer risk for those years only last one year each. Therefore, the potential cancer risk was adjusted to account for the variability in operations and landfill gas generation rates. The AQIA reported an adjusted maximum total 70-year cancer risk of 8.5×10^{-6}, which accounted for the revised phasing/excavation plan. While the cancer risk presented in the AQIA is slightly higher than the cancer risk presented in the FEIR, the risk is still below the significance threshold of 10×10^{-6}.

Table 6
Summary of Air Quality Impacts for 24-Hour and Annual PM_{10} (µg/m3)

AQIA[1]	Operational Year					
	Year -2	**Year 1**	**Year 8**	**Year 17**	**Year 22**	**Year 23**
Maximum 24-hour Impact (1st High)	39.9	19.2	13.1	11.6	29.2	35.3
Background Concentration on Modeled Day	9.9	29.4	15.5	29.4	15.5	9.9
Total 24-hour Impact	**49.8**	**48.6**	**28.6**	**41.0**	**44.7**	**45.2**
California AAQS	50	50	50	50	50	50
National AAQS	150	150	150	150	150	150
Maximum Annual Impact	1.8	1.8	1.5	1.7	2.3	1.6
Annual Background	17.6	17.6	17.6	17.6	17.6	17.6
Total Annual Impact	**19.4**	**19.4**	**19.1**	**19.3**	**19.9**	**19.2**
California AAQS	20	20	20	20	20	20
Final EIR[2,3]	**Operational Year**					
	Year -1	**19**	**30**			
Maximum 24-hour Impact (1st High)	49	28	13			
1st High Background	65	65	65			
Total 24-hour Impact	**114**	**93**	**78**			
California AAQS	50	50	50			
National AAQS	150	150	150			

[1] *Tables 4.7 through 4.13 of Permit Application (Volume VII).*
[2] *Tables 4.7-7, 4.7-12, and 4.7-13 of Section 4.7, GCLF FEIR.*
[3] *The annual PM_{10} concentration was not calculated since the 24-hour concentration exceeded the California AAQS.*

Source: GCLF Final EIR, 2003 and Kleinfelder, SDAPCD Permit Application, Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, 2010.

Summary of Supplemental AQIA

SDAPCD NSR regulations did not require the AQIA to account for tailpipe emissions from on-site on-road and off-road vehicles other than diesel particulate matter (DPM). As such, a supplemental analysis was performed to include these emissions into the AQIA. This analysis is included as Attachment A and a summary is provided below.[8]

[8] *Kleinfelder, Potential Air Quality Impacts of On-Road Vehicles at the Proposed Gregory Canyon Landfill, April 11, 2011.*

Table 7
Summary of Air Quality Impacts for 24-Hour and Annual $PM_{2.5}$ (µg/m3)[4]

AQIA[1]	Operational Year					
	Year -2	**Year 1**	**Year 8**	**Year 17**	**Year 22**	**Year 23**
Maximum 24-hour Impact (1st High)	8.3	7.5	3.6	3.7	7.6	6.1
1st High Background	15.5	15.5	15.5	15.5	15.5	15.5
Total 24-hour Impact[2]	**23.8**	**23.0**	**19.1**	**19.2**	**22.1**	**21.6**
California AAQS	None	None	None	None	None	None
Federal AAQS	35	35	35	35	35	35
Maximum Annual Impact	0.4	0.5	0.5	0.5	0.7	0.5
Annual Background	7.2	7.2	7.2	7.2	7.2	7.2
Total Annual Impact	**7.6**	**7.7**	**7.7**	**7.7**	**7.9**	**7.7**
California AAQS	12	12	12	12	12	12
Federal AAQS	15	15	15	15	15	15

[1] *Tables 4.14 and 4.15 of Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Gregory Canyon Landfill, September 14, 2010.*
[2] *The maximum combined impact is the 1st high modeled impact plus the 1st high background, which is more conservative methodology than required for the Federal standard, which is stated as a 3-year average 98th percentile.*
[3] *The annual PM_{10} concentration was not calculated since the 24-hour concentration exceeded the California AAQS.*
[4] *The Final EIR used PM_{10} as a surrogate to represent potential $PM_{2.5}$ impacts.*

Source: GCLF Final EIR, 2003 and Kleinfelder, Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, 2010.

Operational Year 17 was chosen for the assessment of on-road vehicles on-site because of the following (the values discussed are from the AQIA):

- Years 8 and 17 will have the same number of on-road vehicles on-site per day and year, i.e. 625 refuse trucks per day maximum.

- Total PM_{10} emissions (including off-road diesel emissions) shown in the AQIA are greater for Year 17 than any other Operational Year assessed. The road length to the active face of the landfill is slightly greater in Year 8 than in Year 17, but particulate emissions are greater in Year 17 due to additional material handling in Year 17.

- Diesel particulate emissions from off-road equipment are nearly the same in Year 8 and 17 (0.728 tons per year in Year 8 versus 0.722 tons per year in Year 17).

- There is no blasting anticipated for Year 8, but blasting in Year 17 could occur and the AQIA included an assessment of blasting emissions for Year 17.

Table 8
Summary of Health Risk Impacts for the Maximum Exposed Individual Residential (MEIR)

AQIA[1]	Operational Year					
	Year -2	Year 1	Year 8	Year 17	Year 22	Year 23
Cancer Risk (x 10^{-6})[2]	8.5	8.5	8.5	8.5	8.5	8.5
Chronic HI	0.15	0.22	0.12	0.11	0.08	0.15
Acute HI	0.03	0.05	0.03	0.10	0.14	0.14

Final EIR[3]	Operational Year	
	Year 19	Year 30
Cancer Risk (x 10^{-6})	7.9	5.5
Chronic HI	0.06	0.02
Acute HI	0.03	0.04

[1] *Tables 4.14 and 4.15 of Permit Application (Volume VII).*
[2] *The impact for each construction and operational year is highly variable as it is a function of construction and operations in any given year. The total 70-year cancer risk, including construction, is 8.5 x 10^{-6}. Assuming that a single year occurring for 70 years would yield a cancer risk of 8.0 x 10^{-6} for Year -2, 31.8 x 10^{-6} for Year -1, 6.8 x 10^{-6} for Year 8, 8.4 x 10^{-6} for Year 17, 11.8 x 10^{-6} for Year 22, and 13.7 x 10^{-6} for Year 23.*
[3] *Table 4.7-19 of Section 4.7, GCLF FEIR.*

Source: GCLF Final EIR, 2003 and Kleinfelder, Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill, 2010.

- Landfill gas emissions are more than twice as great in Year 17 than in Year 8 (116 million megagrams per year, Mg/yr, in Year 17 versus 55 million Mg/yr in Year 8); and the maximum health risk from on-site activities other than on-road vehicles in Year 17 is 26 percent greater than in Year 8.

- Although the cancer risk in Years 22 and 23 is greater than in Year 17 (because landfill gas emissions reach their maximum in Year 23), there is no on-road vehicle activity onsite in Year 22 or 23 because no refuse is received.

Emissions from the on-road vehicles on-site (for 625 refuse trucks per day) are shown in Table 9. Table 9 also shows the Year 17 emissions previously assessed in the September 2010 AQIA. Note that in Table 9 the additional particulate matter emissions from the on-road vehicles are relatively small. This is due to the fact that the entrained dust, brake, and tire wear emissions from travel by the on-road vehicles on-site were already included in the AQIA, so the additional emissions from on-road vehicles traveling on-site are only the tailpipe emissions.

Potential Impacts of Criteria Pollutants

The tailpipe on-road vehicles on-site have two general types of emissions, criteria pollutants and diesel particulate matter (DPM). The potential impacts of non-tailpipe emissions of all activities at the landfill, including entrained dust from on-road vehicles traveling on-site, were evaluated in the AQIA. As Table 9 shows, if the tailpipe emissions from on-road vehicles onsite are added to the facility totals, the percent increase of PM_{10}, $PM_{2.5}$, SO_X, and VOC is approximately one percent or less. Considering the location of

Table 9
On-Site Emissions for Year 17

Emission Source	Pollutant (tpy)						
	PM_{10}	$PM_{2.5}$	CO	NO_X	SO_X	VOC	DPM
On-Road Vehicles On-Site Emissions	0.3	0.3	4.1	1.9	0.01	0.3	0.3
Total Emissions Previously Assessed in AQIA	58.5	20.1	3.5	20.3	11.2	26.5	0.7
Percent Increase On-Road Vehicle Emissions and Compared to Total Emissions Previously Assessed in AQIA	**0.5%**	**1.5%**	**117%**	**9.4%**	**0.1%**	**1.1%**	**43%**

Source: Kleinfelder, 2011.

the on-road truck traffic in the landfill compared to the property boundary and the fact that the impacts during the years when on-road vehicles will be on-site (i.e., Operational Years 1 through 22) the impacts of the proposed project are all well less than the relevant ambient air quality standards for those constituents, the addition of on-road vehicles will not cause an exceedance of the standards.

With respect to NO_X emissions, the on-road vehicle emissions add approximately 10 percent of the emissions analyzed in the AQIA. However, during the operational years, the long term ambient air quality impacts of the proposed project without the on-road vehicles is only 60 percent of the relevant standard and the increased impact of the project above background is less than 1 $\mu g/m^3$, or an increase of less than three percent (See Table 4). Thus, the addition of NO_X from on-road vehicles will not cause an exceedance of the CAAQS and NAAQS. The maximum short term impacts of NO_X are virtually all related to blasting impacts. During blasting, there will be minimal or no on-road vehicle travel on-site and the travel that does occur will occur at a much different location than blasting. Therefore, the addition of the on-road vehicle NO_X emissions will not cause an exceedance of the CAAQS and NAAQS.

CO emissions increase substantially when on-road vehicle emissions are added, slightly more than double. However, the situation with CO is the same as with NO_X. The long term impacts of facility operations are much less than the relevant standards impacts and addition of emissions from the on-road vehicles will not cause an exceedance of the standard. As in the case of NO_X, the maximum short term impacts of CO are virtually all related to blasting impacts, and the on-road vehicle emissions occur in a different area and will not occur at the same time as the blasting. Accordingly, the on-road vehicle CO emissions will not cause an exceedance of the CAAQS and NAAQS.

As indicated above, the tailpipe emissions from off-road equipment, other than diesel particulate matter, were not explicitly evaluated in the AQIA (the fugitive dust emissions associated with this equipment and the DPM impacts of this equipment were evaluated). Tailpipe emissions from the off-road equipment have similar impacts to the tailpipe emissions of the on-road trucks. They are spread out over a large area and do not occur when the maximum short term impacts occur (i.e., during a blasting event, there will be no off-road equipment operating in the area). Therefore, if the tailpipe emissions from off-road equipment were modeled, they would not cause an exceedance of the CAAQS and NAAQS. That is, the maximum ambient air quality impacts have been evaluated and have been reported in the AQIA.

Potential Health Risk Impacts

There are two types of health effects associated with DPM, (1) direct acute and chronic health effects and (2) potential carcinogenesis. The potential direct acute and chronic health effects of full scale landfill operations are relatively very small, less than 22 percent of health thresholds of concern (i.e., a Hazard Index of 0.22, see Table 8). Since emissions from the on-road trucks are much less than other operational emissions, the on-road trucks would not cause an exceedance of the direct acute and chronic health thresholds of concern (i.e., the Hazard Index would remain much less than 1.0).

The potential cancer risk of full scale landfill operations was presented in Table 8 as 8.5 in a million for Years -2 through 68 (i.e., 70 year lifetime exposure). This value was based on emission factors of potential carcinogenic compounds from landfill gas published in the old United States Environmental Protection Agency (USEPA) Publication AP-42, Chapter 2, dated November, 1998. In addition, it was conservatively assumed that off-road equipment did not have diesel particulate filters (DPF) installed.

For the assessment of potential cancer risk due to the combination of landfill operations plus on-road equipment, the emissions presented in the AQIA were updated by using (1) the updated emission factors for the carcinogenic constituents of landfill gas as published in the October 2008 draft AP-42 Chapter 2 publication, and (2) reducing DPM emissions from off-road equipment by 85 percent as the result of installing DPFs on all off-road diesel fueled equipment (required by the FEIR). The resultant maximum residential cancer risk (MEIR), which includes landfill gas constituents, off-road equipment DPM, and on-road vehicle DPM is a total of 5.4 in a million. This value is less than the 10 in a million threshold for cancer risk. Thus, including on-road vehicles will not exceed the cancer risk significance threshold of 10 in a million.

Conclusion

The above summary of the AQIA findings compared against the findings of the FEIR demonstrate that the revisions to the phasing/excavation plan would not result in any new air quality and health risk impacts not previously disclosed in previous CEQA Documentation. No further analysis is required.

Item 24

The continued use of the existing Herzog storage yard on the former Lucio dairy for temporary storage of construction materials and equipment was not considered in previous CEQA Documentation. This temporary storage would only be used until such time as habitat restoration is implemented on this area. The supplemental analysis to the AQIA addressed this issue and is included as Attachment A.[9] A summary is provided below.

The temporary construction storage yard would be used during initial construction of the landfill (Years -2, and -1) and during some of the liner construction activities. The temporary storage yard is a disturbed area that is currently being used as a storage yard located near the center of the GCLF property, north of Highway 76 and west of the access road (see the figure in Attachment A). Materials and equipment to be placed at the temporary storage yard include concrete and asphalt excavated as part of demolition of the existing dairy facilities, synthetic liner material, piping, steel beams, wood forms, modular buildings, tanks and related construction materials, as well as limited vehicle parking. Activities at the yard will include

[9] *Kleinfelder, Potential Air Quality Impacts of On-Road Vehicles at the Proposed Gregory Canyon Landfill, April 11, 2011.*

delivery of materials, transport of materials to the construction areas, and crushing of asphalt and concrete and transport to landfill areas for use in wet weather decking and road base.

The amount of asphalt and concrete crushed at the yard has been estimated as a total of approximately 9,254 tons of material that will be recycled, salvaged, or otherwise re-used on-site. The 9,254 tons of material is less than one percent of the amount of rock that will be excavated, crushed, and used on-site as part of constructing the operational landfill areas (760,856 tons of rock each in Years -2 and -1 and 99,825 tons of rock in Year 17, a total of over 1.6 million tons of rock) that was previously assessed in the AQIA. In addition, handling 9,254 tons of material is an extremely small fraction of the soil handled at the landfill. For example, in Year -2 a total of 2.6 million cubic yards (nearly 4 million tons) of soil is excavated and moved to Stockpiles A and B. The amount of material handled at the Temporary Storage yard is less than 0.2 percent of the amount moved at the landfill.

All of the construction equipment needed for excavation and maintenance of the landfill from Year -2 through Year 23 was included in the previous air quality assessments. However, there may be short term uses of one or a few pieces of construction equipment for special purposes during some construction activities, such as a crane to assist in bridge and stormwater drainage facilities construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. There would be no increase in the amount or intensity of work on any construction day.

The AQIA for the Permit Application analyzed the worst case combination of emissions and locations to yield the maximum off-site ambient air quality impact of all operations. The AQIA demonstrated that the ambient air quality standards would not be exceeded when the landfill was operated in the worst case combination of emissions and locations. Since the operations that could cause emissions at the Temporary Storage yard (i.e., a few pieces of construction equipment and a very small amount of crushing and material handling) is much less than full scale landfill operations (less than one percent of the crushing and less than 0.2 percent of the amount of material moved), and since the Temporary Storage yard is located relatively much further from the site boundary than the other major landfill operations (see Attachment A); the Temporary Storage yard will not materially change the ambient impacts reported in the AQIA, and air quality and health risk impacts would be consistent with the finding in the Final EIR.

Noise

As discussed above, potential noise impacts were evaluated based on refinements to the project that were not evaluated in previous CEQA Documents.

ITEMS REQUIRING NO FURTHER ANALYSIS

The changes identified in Items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24 in Table 1 would either result in less potential noise impacts from the proposed project, or the change in potential impact would be inconsequential or not significant. A discussion of each item follows below.

Item 1 – Potential noise impacts related to habitat creation and enhancement of riparian areas were previously evaluated in the FEIR and RFEIR. The Biological Technical Report included as Appendix B of the RFEIR concluded that the increase in the extent of habitat creation or enhancement from 88.0 acres

to 212.6 acres would not result in any secondary impacts (e.g., noise) to biological resources because the mitigation would continue to be implemented in accordance with the project biologist. Likewise, the relatively smaller increase from 212.6 acres to 241.6 acres would continue to be implemented in accordance with the project biologist. As noted in Appendix D of the RFEIR, the increase in acreage would not increase the amount or intensity of work on any construction day given the need to protect biological resources, but rather would extend the time required to complete the work. No additional analysis is required.

Item 2 – The reduction of refuse disposal capacity from 33.4 million tons analyzed in the FEIR to 30.8 million tons would not materially change the intensity of activities for construction and operations at the landfill site. As such, no changes are anticipated in the use of noise producing equipment (e.g., bull dozer, scraper, and compactor). No additional analysis is required.

Item 3 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. Replacement of temporary facilities would occur during future years of operation in conjunction with ongoing liner development. This replacement would not take place as part of initial construction, where the level of construction activity and potential impacts are expected to be their greatest. Since pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, this additional relatively minor construction would not be expected to result in increased noise impacts. Traffic trip limitations would apply to any equipment deliveries related to construction of replacement facilities. No additional analysis is required.

Item 4 – The noise analyses conducted for the FEIR included construction activities associated with bridge construction as part of initial construction. The slight increase in length (approximately six percent) and the change from ten piles to five large diameter piles would not result in a change in the amount or intensity of work on any construction day given the need to protect biological resources, but rather could slightly extend the time required to complete the work. In addition, the change in the diameter of piles would not require a larger noisier piece of equipment (e.g., impact pile driver). Traffic trip limitations would apply to any materials deliveries. It is important to note, that the amount of excavation needed for bridge construction would be less, since excavation to lower the channel in the San Luis Rey River has been eliminated. Therefore, the revised bridge design could result in slightly less use of noise producing heavy-duty construction equipment over the duration of bridge construction. No additional analysis is required.

Item 5 – Noise impacts from the use of pre-conditioned clay would be inconsequential, since the same volume of clay for liner construction would still be required. To the extent that there are any additional truck trips, those would be subject to daily and hourly traffic restrictions. No additional analysis is required.

Item 6 – The increase of two additional employees could potentially increase traffic noise impacts from the project as a result of vehicle trips associated with the employees. However, the project is subject to daily and hourly traffic restrictions as discussed in Item 5. Therefore, the two additional employees would not result in any additional trips or traffic noise impacts not disclosed in previous CEQA Documentation. No additional analysis is required.

Item 7 – The refuse-to-daily cover ratio can be increased slightly through some modifications in operating activities. This would not be a significant change from operations as described in the FEIR. The use of alternative daily cover (ADC) was identified and analyzed in the FEIR. The biggest change would be to sequence filling in a way to minimize the need for intermediate cover, which would utilize soil. As a result, careful fill sequencing would result in less soil excavation at the borrow-stockpile areas and less on-site transportation and placement of cover soil. Thus, this project feature could result in a slight reduction in the use of heavy-duty equipment than analyzed in the FEIR. No additional analysis is required.

Item 8 – The total volumes of soil required for cover and canyon shaping decrease from 14.2 million cubic yards (mcy) to 14.1 mcy. No change in the estimated capacity of soil stockpile areas would occur based on this change. As a result of the decrease in soil, the project could result in a corresponding slight reduction in the use of noise producing heavy-duty equipment than what was analyzed in the FEIR.

Item 9 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. Construction of additional monitoring wells would be part of initial construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. As an example, the drilling rig used for bridge construction could be used to install the additional monitoring wells. There would be no increase in the amount or intensity of work on any construction day and construction of additional wells would not be anticipated to substantially extend the time to complete the work. The additional monitoring wells would be located in close proximity to the 13 monitoring wells identified in previous CEQA Documentation and the wells would not be considered a long-term source of noise.[10] Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 10 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. The installation of 14 permanent and 2 temporary gas monitoring probes has a negligible difference from installation of 15 permanent probes. Construction of gas monitoring probes would be part of initial construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. There would be no increase in the amount or intensity of work on any construction day, but construction of additional probes might extend the time to complete the work. The additional probes would be located in the same areas where other construction would be occurring. Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 11 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. Construction of litter fencing along the bridge deck would be part of initial construction. The height of the fence will be approximately 12 feet above a 3 foot concrete barrier on the bridge for a total height of 15 feet. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. Also, because of its location, construction of litter fencing would not increase the amount or intensity of work on any construction day given the need to protect

[10] *Geo-Logic Associates, Workplan for Additional Groundwater Monitoring Well Installation and Wellhead Protection Area Identification at the Proposed Gregory Canyon Landfill Site, 2011.*

biological resources, but rather would extend the time required to complete the work. Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 12 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. Construction of additional storm water control features would be part of initial construction and would primarily be carried out as part of grading activities. No construction would be required for the percolation basins, which would utilize existing topography and soil characteristics. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. The additional storm water control features would be located in the same areas where other construction would be occurring. Also, given the location of these additional facilities, their construction would not increase the amount or intensity of work on any construction day given the need to protect biological resources, but rather would extend the time required to complete the work. Traffic trip limitations would apply to any materials/equipment deliveries. As such, no additional analysis is required.

Item 13 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. In order to accommodate higher flows in the western perimeter drain, the size of the drains would be relatively larger, with more shaping of the foundation and more concrete. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. The larger sizing would not result in an increase in the amount or intensity of work on a given work day, but might extend the time required to construct the western perimeter drain. The perimeter drains are located in the same areas where other construction would be occurring. Although additional pre-mixed concrete truck trips would be necessary for the improvements, hourly and daily traffic trip limitations would apply to any materials/equipment deliveries and would therefore not result in any additional daily trips. As such, no additional analysis is required.

Item 14 – The estimated peak leachate generation per day is estimated to be only one gallon per day higher than estimated and analyzed in the FEIR, which is inconsequential and would not result in an change in equipment usage or an increase in disposal trips. Traffic trip limitations would apply to any disposal trips and, therefore, no additional analysis is required.

Item 15 – The excavated gradient within the landfill footprint would change slightly to better facilitate the removal of leachate. As noted in the discussion of Item 8, the total amount of excavation for specified construction activities, including canyon shaping, is less than estimated in the FEIR. As a result, no changes in the use of noise producing heavy-duty equipment on a daily basis are anticipated and noise impacts would be consistent with the findings of the FEIR.

Item 16 – The phasing/excavation plan for Phases I, II, III and IV were modified subsequent to the analysis performed for the FEIR and is presented above in Figure 2. The size of different phases within the landfill footprint might be smaller or larger than estimated in the FEIR, but the overall footprint would remain the same. Pieces of equipment used for landfill construction and operation (e.g., loaders, bull dozers, compactors) were conservatively estimated to operate the entire work day. Larger sizing of a phase would not result in an increase in the amount or intensity of work on a construction day, but might extend the time required to construct that phase. The converse is also true, where the time for construction might be less if the phase is smaller. The noise analysis presented in Section 4.6 of the

Final EIR addressed potential noise impacts based maximum use of heavy-duty equipment on a daily basis and on distance noise attenuation between the closest noise sensitive receptor to the landfill footprint. As such, the change in phasing/excavation would not change the noise levels presented in the Final EIR since the overall landfill footprint would not change. No additional analysis is required.

Item 17 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. Construction of the additional bedrock monitoring wells would be part of initial construction. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. As an example, the drilling rig used for bridge construction could be used to install the additional monitoring wells. There would be no increase in the amount or intensity of work on any construction day and construction of additional wells would not be anticipated to substantially extend the time to complete the work. The additional six monitoring wells would be located in close proximity to the 20 monitoring wells identified in previous CEQA Documentation and the wells would not be considered a long-term noise source.[11] Traffic trip limitations would apply to any materials deliveries. As such, no additional analysis is required.

Item 18 – The excavation contour for the northern toe would change from approximately 400 feet above mean sea level (amsl) to 380 feet amsl, which is inconsequential. The difference at the southern toe between 700 feet amsl and approximately 925 feet amsl represents a substantial reduction in depth of excavation. The change in elevations would not result in a change in noise impacts as the maximum daily activity associated with excavation activities (e.g., quantity excavated and use of heavy-duty construction equipment) would not change in comparison to excavation activities analyzed in the Final EIR. In addition, the change in elevations would not change the line of sight to potential noise sources for residences in the vicinity of the project site. No additional analysis is required.

Item 19 – Appendix D of the RFEIR and Appendix L of the 2009 Addendum analyzed potential noise impacts from construction of additional features on the landfill property. A reverse osmosis treatment plant was described in the FEIR as part of initial construction. Additional granular activated carbon (GAC) treatment canisters would be added. The use of GAC treatment canisters runs off of electricity and would not be considered a substantial source of noise during operation of the project. From a construction standpoint, the system would require limited use of heavy-duty construction equipment for installation. Pieces of equipment used for other purposes were conservatively estimated to operate the entire work day, and this same equipment could be used for this purpose. The additional equipment would be located in the same areas where other construction would be occurring. Traffic trip limitations would apply to any equipment deliveries. Operation of the GAC treatment canisters would not result in significant noise emissions, and would likely not discernable since the largest source of noise is from trucks entering and leaving the landfill. As such, no additional analysis is required.

Item 20 – H.G. Fenton quarry is no longer operational and would not result in any direct changes in potential noise impacts identified in the FEIR. However, since the quarry is no longer operational it would serve to reduce truck trips along SR 76 and corresponding noise levels along the travelled segments. In addition, the results of the traffic noise modeling conducted in the FEIR for SR 76 in the

[11] *Geo-Logic Associates, Workplan for Additional Groundwater Monitoring Well Installation and Wellhead Protection Area Identification at the Proposed Gregory Canyon Landfill Site, 2011.*

project vicinity would be considered conservative since truck trips associated with H.G. Fenton quarry were included in the traffic analyzed. No additional analysis is required.

Item 21 – The Calmat (Vulcan) quarry is no longer operational and would not result in any direct changes in potential noise impacts identified in the FEIR. However, the property has been modified and converted to be operated as a 240-acre motocross raceway under a long-term lease between MX Motocross Raceway and the Pala Tribe identified as the Pala Raceway. According to San Luis Rey Watershed Council (SLRWC) Meeting Minutes, dated 5/22/2008, Kirk Chandler (Pala Raceway/MX Raceway) presented that "There are no plans for large "Spectator Events", like those held at the Carlsbad Raceway; if this changes there will be multiple traffic studies done…".[12] Additionally, it was presented that the raceway traffic would be limited to approximately 196 vehicles per day (on a 30-day schedule) and would be substantially less than Vulcan Mining which was more than 230 trucks per day. Please note from a noise equivalency standpoint, one truck trip equals approximately 25 to 35 light duty trucks and autos depending upon vehicle speed. While large spectator events at this site were not contemplated according to the SLRWC Meeting Minutes, if spectator events were to occur, they would only occur sporadically and typically on weekends when landfill traffic is lower and would have a minimal contribution to ADT. In addition, MX Raceway traffic may not constitute a significant increase over ADT generated overall from operation of the Pala Casino. When weighing the ADT generated by the MX Raceway against the ADT decreases attributable to the closing of the H.G. Fenton and Calmat (Vulcan) quarries, the overall change in traffic is inconsequential. As discussed above for Item 22, the results of the traffic noise modeling conducted in the FEIR for SR 76 would be considered conservative since truck trips associated with H.G. Fenton and Calmat (Vulcan) quarries were included in the traffic analyzed. No additional analysis is required.

Item 22 – All local fire protection authorities operate under a mutual aid agreement. Regardless of which authority is providing service, response will occur from the nearest fire station first, with other more distant fire stations participating as needed. As a result, there would be no changes in the significance conclusions for noise impacts identified in the FEIR. No additional analysis is required.

Item 23 – LEA programs to divert household hazardous waste prior to placement in waste receptacles reduces the potential for delivery of HHW to the landfill and would have no change in landfill operations or traffic trip limitations. As a result, there would be no changes in the significance conclusions for noise impacts identified in the FEIR. No additional analysis is required.

Item 24 – The continued use of the existing Herzog storage yard on the former Lucio dairy for temporary storage of construction materials and equipment was not considered in previous CEQA Documentation. The temporary construction storage yard would be used during initial construction of the landfill and during some of the liner construction activities. The temporary storage yard is currently being used as a storage yard located near the center of the GCLF property, north of Highway 76 and west of the access road. Materials and equipment to be placed at the temporary storage yard include concrete and asphalt excavated as part of demolition of the existing dairy facilities, synthetic liner material, piping, steel beams, wood forms, modular buildings, tanks and related construction materials, as well as limited vehicle parking. The storage yard would be used intermittently and would not be considered a substantial source of noise. In addition, this temporary storage would only be used until such time as

[12] *http://www.projectcleanwater.org/pdf/slrwc/slrwc_minutes_05-22-08.pdf*

habitat restoration is implemented on this area in accordance with the project biologist. No additional analysis is required.

CONCLUSION

Based on the above analysis, changes in the Gregory Canyon Landfill project would not result in any new or substantially different project-related air quality, health risk, or noise impacts not disclosed in the CEQA Documents.

ATTACHMENT A

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April 11, 2011

Mr. Bill Hutton
21st Century Plaza
6303 Owensmouth Avenue
Woodland Hills, CA 91367

Subject: Potential Air Quality Impacts of On-Road Vehicles at the Proposed Gregory Canyon Landfill

Dear Mr. Hutton:

You have requested an analysis of the potential ambient air quality impacts of on-road vehicles (refuse trucks) that will be on-site at the Gregory Canyon Landfill (GCLF). You have also requested an analysis of the potential ambient air quality impact of a temporary storage yard and equipment that will be used during some construction activities at the site.

We previously evaluated the air quality impact of all other operations at the landfill and reported that analysis in the document entitled *Volume VII: Updated Air Quality Impact Analysis and Health Risk Assessment for the Proposed Gregory Canyon Landfill* dated September 14, 2010. The September 14, 2010 impact analysis updates and supplements previous impact analyses performed in 2008 and 2009. These analyses are collectively referred to herein as the Air Quality Impact Analyses, or AQIAs. The previous AQIAs did not assess the potential impact of on-road vehicles on-site as the San Diego Air Pollution District does not regulate on-road vehicles. Thus the purpose of this letter is to evaluate the potential additional impact of the on-road vehicles on-site and the temporary storage yard construction activities.

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ADDITIONAL ACTIVITIES EVALUATED

On-Road Vehicles On-Site

You have indicated that, when the landfill is fully operational, receiving a maximum 5,000 tons per day of refuse, that there will be up to 625 one-way refuse truck trips per day (i.e., up to 625 trucks arriving per day), and on an average day there will be up to 400 one way truck trips. The refuse trucks will be traditional refuse trucks with fleet average emissions, (i.e., there is no program to require any special type of refuse trucks). For purposes of this additional impact assessment, we have assumed that all of the trucks are diesel-fueled. This is a conservative (i.e., over-estimate of particulate emissions) assumption since some of the trucks will be fueled by gasoline or natural gas. You have indicated that the land use permit allows a maximum total of 675 vehicles per day. However, the additional up to 50 vehicles per day will be a mix of employee vehicles, service trucks, vendor trucks, etc.; not diesel fueled refuse trucks. In addition, if heavier refuse trucks are used, there will be fewer than 625 refuse trucks, as there is a limit on the total amount of refuse that can be accepted at the landfill. Accordingly, it was conservatively assumed, (i.e., over-estimate emissions) that there were 625 diesel fueled refuse trucks entering the landfill on each day of operation.

You have also indicated that the land use permit will require all on-site off-road equipment to have diesel particulate filters installed. This requirement was not included in the previously completed AQIAs for off-road equipment, and thus the potential health risk of off-road equipment in the AQIAs is over-estimated.

Temporary Construction Storage Yard

You have indicated that there will be a temporary construction storage yard used during initial construction of the landfill (Years -2, and -1) and during some of the liner construction activities. The temporary storage yard is a currently disturbed area that is currently being used as a storage yard located near the center of the GCLF property, north of Highway 76 and west of the access road (see the figure in Attachment A).

Materials and equipment to be placed at the temporary storage yard include concrete and asphalt excavated as part of demolition of the existing dairy facilities, synthetic liner material, piping, steel beams, wood forms, modular buildings, tanks and related construction materials, as well as limited vehicle parking. Activities at the yard will include delivery of materials,

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transport of materials to the construction areas, and crushing of asphalt and concrete and transport to landfill areas for use in wet weather decking and road base.

The amount of asphalt and concrete crushed at the yard has been estimated by you as a total of approximately 9,254 tons of material that will be recycled, salvaged, or otherwise re-used on-site. The 9,254 tons of material is less than 1 percent of the amount of rock that will be excavated, crushed, and used on-site as part of constructing the operational landfill areas (760,856 tons of rock each in Years -2 and -1 and 99,825 tons of rock in Year 17, a total of over 1.6 million tons of rock) that was previously assessed in the AQIA. In addition, handling 9,254 tons of material is an extremely small fraction of the soil handled at the landfill. For example, in Year -2 a total of 2.6 million cubic yards (nearly 4 million tons) of soil is excavated and moved to Stockpiles A and B. The amount of material handled at the Temporary Storage yard is less than 0.2 percent of the amount moved at the landfill.

Temporary Construction Equipment

All of the construction equipment needed for excavation and maintenance of the landfill from Year -2 through Year 23 was included in the previous air quality assessments. However, there may be short term uses of one or a few pieces of construction equipment for special purposes during some construction activities, such as a crane to assist in bridge and stormwater drainage facilities construction. Emissions from these items have not been included in the previous AQIAs. However, the use of these items is isolated, over a very short time, and is insignificant compared to the rest of the off-road equipment (e.g., graders, scrapers, excavators, dozers, compactors, etc.) that is used continuously throughout construction and operation of the landfill.

Tailpipe Emissions from Off-Road Equipment

The AQIA did not evaluate tailpipe emissions from off-road equipment other than diesel particulate matter. This is due to the fact that diesel risk is the most important concern related to off-road equipment. Thus, the tailpipe emissions from off-road equipment will also be evaluated herein.

TAILPIPE EMISSIONS FROM ON-ROAD VEHICLES ON-SITE

In order to calculate the tailpipe emissions from the on-road vehicles on-site, the most recent version of the California Air Resources Board (CARB) mobile emissions model (EMFAC 2007)

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was used. The emissions model was run for Operational Year 17, Calendar Year 2028, assuming that all the vehicles were medium heavy duty diesel fueled trucks (MHDDT). Calendar Year 2028 was chosen based on the assumption used in the AQIA that construction would start in 2010, and first refuse received in 2012, Operational Year 1. This assumption was made to be consistent with previous analyses and to provide a conservative, over-estimate, of emissions; since mobile source emissions continuously decrease on a per mile basis as newer engines and emission controls are placed on fleet vehicles.

Operational Year 17 was chosen for the assessment of on-road vehicles on-site because of the following (the values discussed are from the AQIA):

- Years 8 and 17 will have the same number of on-road vehicles on-site per day and year, i.e. 625 refuse trucks per day maximum.
- Total PM10 emissions (including off-road diesel emissions) shown in the AQIA are greater for Year 17 than any other Operational Year assessed. The road length to the active face of the landfill is slightly greater in Year 8 than in Year 17, but particulate emissions are greater in Year 17 due to additional material handling in Year 17.
- Diesel particulate emissions from off-road equipment are nearly the same in Year 8 and 17 (0.728 tons per year in Year 8 versus 0.722 tons per year in Year 17).
- There is no blasting anticipated for Year 8, but blasting in Year 17 could occur and the AQIA included an assessment of blasting emissions for Year 17.
- Landfill gas emissions are more than twice as great in Year 17 than in Year 8 (116 million megagrams per year, Mg/yr, in Year 17 versus 55 million Mg/yr in Year 8); and the maximum health risk from on-site activities other than on-road vehicles in Year 17 is 26% greater than in Year 8.
- Although the cancer risk in Years 22 and 23 is greater than in Year 17 (because landfill gas emissions reach their maximum in Year 23), there is no on-road vehicle activity on-site in Year 22 or 23 because no refuse is received.

Emissions from the on-road vehicles on-site (for 625 refuse trucks per day) are shown in Table 1.. Table 1 also shows the Year 17 emissions previously assessed in the September 2010 AQIA. Note that in Table 1 the additional particulate matter emissions from the on-road vehicles are relatively small. This is due to the fact that the entrained dust, brake, and tire wear emissions from travel by the on-road vehicles on-site were already included in the AQIA, so the additional emissions from on-road vehicles traveling on-site are only the tailpipe emissions.

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Table 1
On-Site Emissions for Year 17
(tons per year)

Emission Source	PM10 (tpy)	PM2.5 (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	VOC (tpy)	Diesel Particulate Matter (tpy)
On-Road Vehicles On-Site Emissions	0.3	0.3	4.1	1.9	0.01	0.3	0.3
Total Emissions Previously Assessed in AQIA	58.5	20.1	3.5	20.3	11.2	26.5	0.7
Percent Increase On-Road Vehicle Emissions add Compared to Total Emissions Previously Assessed in AQIA	0.5%	1.5%	117%	9.4%	0.1%	1.1%	43%

POTENTIAL AMBIENT AIR QUALITY IMPACT OF THE TEMPORARY STORAGE YARD AND TEMPORARY CONSTRUCTION EQUIPMENT

The AQIA analyzed the worst case combination of emissions and locations to yield the maximum off-site ambient air quality impact of all operations. The AQIA demonstrated that the ambient air quality standards would not be exceeded when the landfill was operated in the worst case combination of emissions and locations. Since the operations that could cause emissions at the Temporary Storage yard (i.e., a few pieces of construction equipment and a very small amount of crushing and material handling) is much, much less than full scale landfill operations (less than 1 percent of the crushing and less than 0.2 percent of the amount of material moved), and since the Temporary Storage yard is located relatively much further from the site boundary than the other major landfill operations (see Attachment A); the Temporary Storage yard will not materially change the ambient impacts reported in the AQIA, and the impacts will remain below the ambient air quality standards.

In addition, at times there may be use of individual pieces of construction equipment during construction of the landfill (e.g., a crane may be used during bridge and/or stormwater drainage facilities construction), but the use of these items is isolated and occurs over a very short time compared to the rest of the off-road equipment that is used continuously throughout construction and operation of the landfill. Therefore, emissions from these additional isolated items of equipment would not change the ambient impacts reported in the AQIA.

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POTENTIAL ADDITIONAL AMBIENT AIR QUALITY IMPACT OF TAILPIPE EMISSIONS FROM ON-ROAD TRUCKS ON-SITE

Potential Impacts of Criteria Pollutants

The tailpipe on-road vehicles on-site have two general types of emissions, criteria pollutants and diesel particulate matter (DPM). The potential impacts of non-tailpipe emissions of all activities at the landfill, including entrained dust from on-road vehicles traveling on-site, were evaluated in the AQIA. As Table 1 shows, if the tailpipe emissions from on-road vehicles on-site are added to the facility totals, the percent increase of PM10, PM2.5, SOx, and VOC is on the order of 1 percent or less. Considering the location of the on-road truck traffic in the landfill compared to the property boundary and the fact that the impacts during the years when on-road vehicles will be on-site (i.e., Operational Years 1 through 22) the impacts of the proposed project are all well less than the relevant ambient air quality standards for those constituents, the addition of on-road vehicles will not cause an exceedance of the standards.

With respect to NOx emissions, the on-road vehicle emissions add nearly 10 percent of the emissions analyzed in the AQIA. However, , during the operational years, the long term ambient air quality impacts of the proposed project without the on-road vehicles is only 60 percent of the relevant standard and the increased impact of the project above background is less than 1 ug/m3, or an increase of less than 3 percent. (See Table 4-5 of the September 2010 AQIA.) Thus the addition of NOx from on-road vehicles will not cause an exceedance of the standards.

The maximum short term impacts of NOx are virtually all related to blasting impacts. During blasting, there will be minimal or no on-road vehicle travel on-site and the travel that does occur will occur at a much different location than blasting. Therefore, the addition of the on-road vehicle NOx emissions will not cause an exceedance of the standards.

CO emissions increase significantly when on-road vehicle emissions are added, slightly more than double. However, the situation with CO is the same as with NOx. The long term impacts of facility operations are much less than the relevant standards impacts and addition of emissions from the on-road vehicles will not cause an exceedance of the standard. As in the case of NOx, the maximum short term impacts of CO are virtually all related to blasting impacts, and the on-road vehicle emissions occur in a different area and will not occur at the same time as the blasting. Accordingly, the on-road vehicle CO emissions will not cause an exceedance of the standards.

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In summary, addition of the on-road vehicle emissions will not cause an exceedance of the ambient air quality standards for the criteria pollutants.

Potential Impacts of Diesel Particulate Matter

There are two types of health effects associated with DPM, (1) direct acute and chronic health effects and (2) potential carcinogenesis. The potential direct acute and chronic health effects of full scale landfill operations are relatively very small, less than 22 percent of health thresholds of concern (i.e., a Hazard Index of 0.22, see Tables 5-1 and 5-2 of the September 2010 AQIA). Since emissions from the on-road trucks are much less than other operational emissions, the on-road trucks would not cause an exceedance of the direct acute and chronic health thresholds of concern (i.e., the Hazard Index would remain much less than 1.0).

The potential cancer risk of full scale landfill operations was presented in the September 2010 AQIA, Section 5.2, Page 51, as 8.5 in a million for Years -2 through 68 (i.e., 70 year lifetime exposure). This value was based on the AERMOD dispersion model and the HARP risk assessment model as described in the AQIA. The September 2010 AQIA used emission factors of potential carcinogenic compounds from landfill gas published in the old United States Environmental Protection Agency (USEPA) Publication AP-42, Chapter 2, dated November, 1998. The September 2010 AQIA was also based on DPM emissions from off-road equipment that did not have diesel particulate filters (DPF) installed.

For the assessment of potential cancer risk due to the combination of landfill operations plus on-road equipment, the September 2010 emissions were updated by using (1) the updated emission factors for the carcinogenic constituents of landfill gas as published in the October 2008 draft AP-42 Chapter 2 publication, and (2) reducing DPM emissions from off-road equipment by 85 percent as the result of installing DPFs on all off-road diesel fueled equipment. Then the DPM emissions from the on-road vehicles on-site were added into the HARP model.

The resultant maximum residential cancer risk (MEIR), which includes landfill gas constituents, off-road equipment DPM, and on-road vehicle DPM is a total of 5.4 in a million. This value is less than the 10 in a million threshold for cancer risk. The diesel risk was calculated as shown in Attachment B of this letter. The September 2010 AQIA demonstrated that the maximum cancer risk for off-site workers (MEIW) is much less than the MEIR (on the order of one-half as great as the MEIR), and thus the addition of on-road vehicles will not cause the MEIW to exceed the 10 in a million threshold.

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POTENTIAL ADDITIONAL AMBIENT AIR QUALITY IMPACT OF TAILPIPE EMISSIONS FROM OFF-ROAD EQUIPMENT

As indicated, the tailpipe emissions from off-road equipment, other than diesel particulate matter, were not explicitly evaluated in the AQIA (the fugitive dust emissions associated with this equipment and the DPM impacts of this equipment were evaluated). Tailpipe emissions from the off-road equipment have similar impacts to the tailpipe emissions of the on-road trucks. They are spread out over a large area and do not occur when the maximum short term impacts occur (i.e., during a blasting event, there will be no off-road equipment operating in the area). Therefore, if the tailpipe emissions from off-road equipment were modeled, they would not cause an exceedance of the ambient air quality standards. That is, the maximum ambient air quality impacts have been evaluated and have been reported in the AQIA.

CONCLUSION

The addition of the temporary storage yard and associated temporary construction activities, individual pieces of construction equipment (e.g., a crane) that may be required for isolated construction activities (e.g., building a bridge or stormwater drainage facility), off-road equipment tailpipe emissions, and on-road truck travel emissions on-site will not cause an exceedance of the ambient air quality standards at the property boundary nor an exceedance of the 10 in a million cancer risk threshold.

If you have any questions, feel free to call me at 303-840-4571 or Kris Allen at 719-632-3593.

Sincerely,
KLEINFELDER, INC.

R E Erbes

Russell E. Erbes, CCM
Senior Principal Air Quality Scientist

Attachments:

Attachment A: Figure Showing Temporary Storage Yard
Attachment B: Calculation of Cancer Risk

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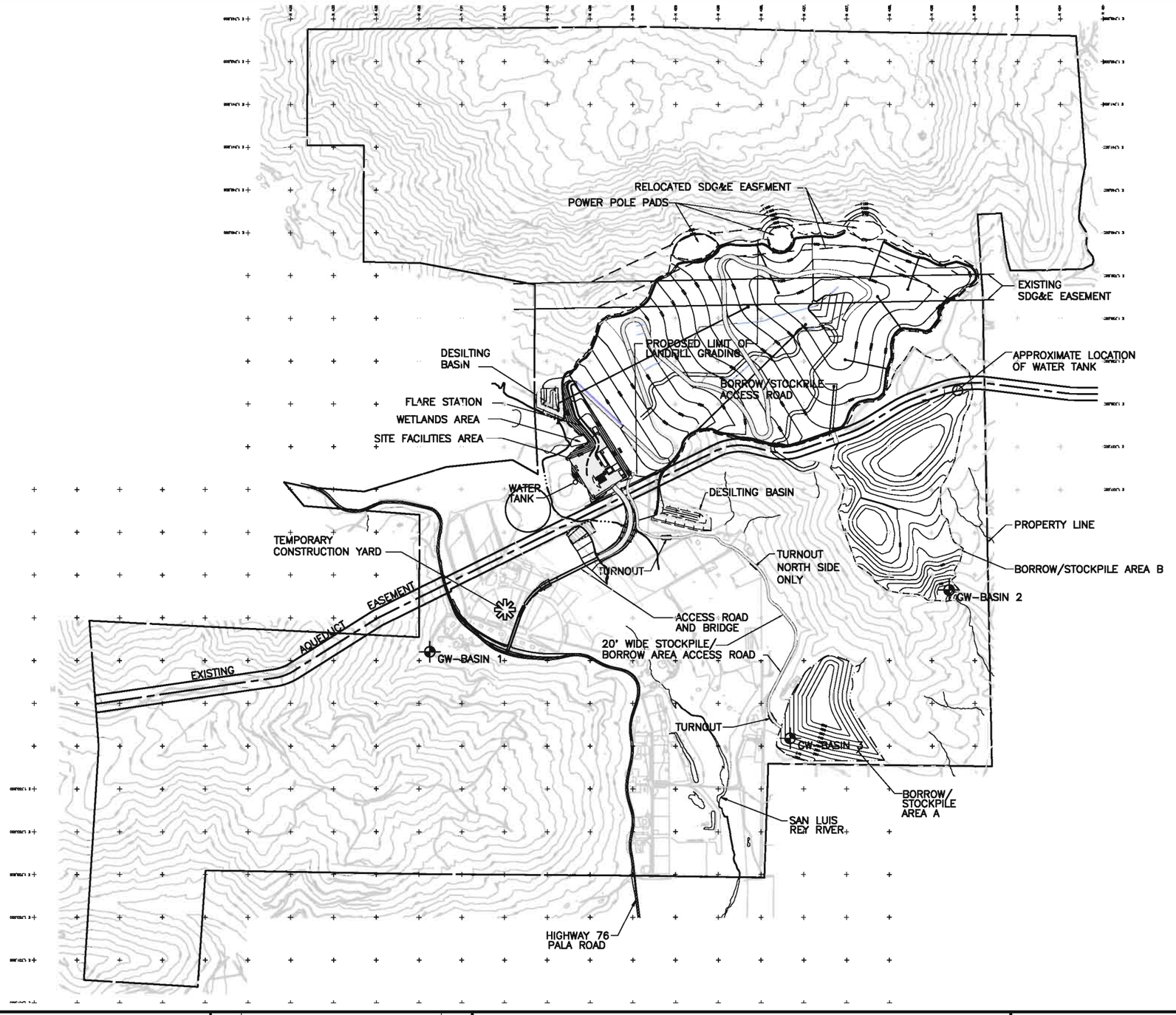
Attachment A

Location of Temporary Storage Yard



GRAPHIC SCALE

600 300 0 600 1200

(IN FEET)

LEGEND

- PROPERTY LINE
- APPROXIMATE LIMIT OF LANDFILL GRADING
- BORROW/STOCKPILE AREA LIMITS
- FINAL CONTOUR
- EXISTING CONTOUR
- ACCESS/HAUL ROAD
- GW — PROPOSED PERCOLATING GROUND WATER WELL

PRELIMINARY

FIGURE 2

NO.	REVISION DESCRIPTION	BY:

BAS
BRYAN A. STIRRAT & ASSOCIATES
CONSULTING CIVIL & ENVIRONMENTAL ENGINEERS
1360 E. VALLEY VISTA DRIVE
DIAMOND BAR, CALIFORNIA 91765
(909) 860-7777

H:\DWG\GREGORY\2010\JTD\FIGURES\30-0066FIG.DWG

GREGORY CANYON LANDFILL
SITE MAP

DESIGNED BY : E.L.S.	SCALE : AS SHOWN	
DRAWN BY : M.T.B.	DATE : 3-2002	FILE NO.: 30-0066FIG
CHECKED BY :	DATE :	
APPROVED BY :	DATE :	SHEET 2 OF 25

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Attachment B

Carcinogenic Risk Calculation

Attachment B
Calculation of Potential Carcinogenic Risk

The September 2010 AQIA demonstrated that the maximum cancer risk occurs when considering a lifetime (70-year) exposure scenario that includes Year -2, Year -1, and Years 1 through 68. The cancer risk is calculated using the same method as used in the September 2010 AQIA, but with revised HARP model results to incorporate the addition of on-road trucks on-site and installation of diesel particulate filters (DPF) on off-road equipment. The HARP model result includes emissions from landfill gas, off-road diesel equipment, and on-road diesel trucks. The model results are available by request. The calculation is as follows. References to the AQIA below are to the September 14, 2010 AQIA.

1. Appendix K of the AQIA provides the result of the landfill gas generation model based on SDAPCD parameters. The maximum landfill gas generation occurs in Year 23, and is 3.649×10^4 megagrams methane. The total landfill gas generated from Year -2 through Year 68 is a total of 1.491×10^6 megagrams methane, or an average landfill gas generation rate over 70 years of 2.130×10^4 megagrams methane per year. Thus the dose over 70 years from landfill gas alone is 2.130×10^4 divided by 3.649×10^4, or 0.584 (58 percent) of the peak, and the potential cancer risk over 70 years is 58 percent of the cancer risk if the maximum landfill gas generation rate occurred for 70 years.

2. Meteorological year 2003 yields the maximum potential cancer risk. In Year 23, the total maximum cancer risk from Table 5-2 of the AQIA is 13.7×10^{-6}. This AQIA value is based on no DPFs and the old (November 1998 AP42 emission factors for landfill gas constituents). Diesel particulate (not counting DPFs as evaluated in the AQIA) is responsible for 2.4×10^{-6} of the total, and 11.3×10^{-6} is from landfill gas and particulate matter emissions during facility closure. The landfill gas is responsible for most of the risk.

3. Two key constituents of the landfill gas risk reported in the AQIA are acrylonitrile (AC) and vinyl chloride (VC). The AQIA landfill gas risk from AC and VC in Year 17 was 3.34×10^{-6} when the old emission factors were used. When the new (October 2008) landfill gas emission factors are used, the risk from AC and VC in Year 17 decreases to 0.54×10^{-6}, a reduction of 2.8×10^{-6}. This Year 17

reduction will be applied to the maximum Year 23 risk. This is a conservative assumption, (i.e., results in an over-estimate of risks) since the contribution of AC and VC in Year 23 is greater than in Year 17, and all of the landfill gas emission constituent factors were updated in October 2008. If Year 23 were re-modeled with the new factors, the reduction would be even greater. Nevertheless a reduction of only 2.8 x 10^{-6} was applied to the Year 23 risk of 11.5 x 10^{-6} (from item 2 above), for a revised Year 23 risk of 11.5 x 10^{-6} less 2.8 x 10^{-6}, which equals 8.5 x 10^{-6}.

4. If one assumed that all of the non-diesel risk in Year 23 occurred from Year -2 to Year 68 (i.e., over a 70-year lifetime), the 70-year risk from non-diesel (landfill gas plus particulates) for Year -2 through Year 68 is 0.584 times 8.5 x 10^{-6}, or **5.0 x 10^{-6}** risk. This is a conservative (i.e., overestimate) value since particulate emissions will not occur beyond Year 23.

5. The AQIA diesel-only risk from only off-road equipment in Year 8 is 5.7 x 10^{-6}, Year 17 it is 2.8 x 10^{-6}, Year 22 it is 2.1 x 10^{-6}, and Year 23 it is 2.4 x 10^{-6}, or an average diesel risk of 3.3 x 10^{-6}. However, this is prior to installation of DPFs on the off-road equipment. The DPFs reduce emissions by 85 percent and thus risk by 85 percent. The average risk with DPFs from off-road equipment is, therefore, 3.3 x 10-6 less 85 percent, which equals 0.5 x 10-6. However, this risk only occurs for 15 years (Years 8 through 23). The equivalent 70-year diesel risk is, therefore, 0.5 x 10^{-6} times 15 divided by 70, or **0.1 x 10^{-6}**.

6. The AQIA non-landfill gas risk for Year -2 is 8.0 x 10^{-6} (which occurs at Receptor Number 18). The off-road diesel portion of this risk (prior to installation of DPFs) is 7.3 x 10-6 and the non-diesel portion is 0.7 x 10-6. After DPFs, the off-road diesel portion will be reduced by 85 percent to 1.1 x 10-6. Therefore, the total risk in Year -2, after DPFs is 0.7 x 10-6 plus 1.1 x 10-6, or a total of 1.8 x 10-6. However, this risk occurs only for one year, so the 70-year risk is 1.8 x 10^{-6} divided by 70, or **0.03 x 10^{-6}**. It is assumed that Year -1 will have the same risk as Year -2, i.e., **0.03 x 10^{-6}**.

7. The AQIA Year 1 non-landfill gas risk is 31.8 x 10^{-6} (which occurs at Receptor Number 82). The off-road diesel portion of this risk (prior to installation of DPFs) is 30.8 x 10-6 and the non-diesel portion is 1.0 x 10-6. After DPFs, the off-road

diesel portion will be reduced by 85 percent to 4.6 x 10-6. Therefore, the total risk in Year -2, after DPFs is 4.6 x 10^{-6} plus 1.0 x 10^{-6}, or a total of 5.6 x 10^{-6}. However, this risk occurs only for one year, so the 70-year risk is 5.6 x 10^{-6} divided by 70, or **0.1 x 10^{-6}**.

8. For Years 2 through 7, it was conservatively assumed (overestimated) that the Year 8 off-road diesel risk (after DPFs) occurred. The Year 8 off-road diesel risk is 5.7 x 10^{-6} less 85 percent or 0.9 x 10^{-6}. But this occurs for only 6 years, so the lifetime risk from this source is 0.9 x 10^{-6} divided by 70 times 6 years, or **0.1 x 10^{-6}**.

9. On-road diesel fueled truck travel in Year 17 caused an additional risk (not previously evaluated in the AQIA but included in this letter) of 0.35 x 10^{-6}. However, this occurs only for 22 years (Year 1 through 22). Thus the lifetime risk is 0.35 x 10^{-6} divided by 70 times 22, or **0.1 x 10^{-6}**.

10. The sum of the individual risks over 70 years (Year -2 through 68) is as follows:

Year -2 to 68 Risk	particulate plus landfill gas (Item 4 above)	5.0 x 10^{-6}
Year -2 Risk	off-road diesel (Item 6)	0.03 x 10^{-6}
Year -1 Risk	off-road diesel (Item 6)	0.03 x 10^{-6}
Year 1 Risk	off-road diesel (Item 7)	0.1 x 10^{-6}
Year 1 to 22 Risk	on-road trucks (Item 9)	0.1 x 10^{-6}
Year 2 to 7 Risk	off-road diesel (Item 8)	0.1 x 10^{-6}
Year 8 to 23 (Item 5)	off-road diesel	0.1 x 10^{-6}
TOTAL RISK	particulate, landfill gas, off-road diesel, on-road diesel	**5.4 x 10^{-6}**

HEALTH RISK ASSESSMENT

Air Quality, Health Risk, and Noise Technical Memorandum
(Addendum to the Certified Final Environmental Impact Report for Gregory Canyon Landfill)

Prepared by:

PCR SERVICES CORPORATION
Mark Hagmann, P.E.

December 2009

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AIR QUALITY, HEALTH RISK, AND NOISE TECHNICAL MEMORANDUM

The purpose of this technical memorandum is to evaluate and identify any new potential air quality, health risk, and noise impacts based on refinements to the Project's water supply and demand analysis that were not identified in the 2003 Draft EIR, the Revised Final Environmental Impact Report (RFEIR) or the 2008 Addendum. It has been determined herein that none of the conditions requiring preparation of a Subsequent or Supplemental EIR have occurred related to air quality, health risk, or noise impacts.

BACKGROUND

As permitting has proceeded for the Project, the water demand estimates have been updated. The water demand estimates have been reduced based on two operational changes, the clay liner and a soil sealant. The water demand at the landfill property for liner construction can be eliminated by changing the product specification so that no water would need to be added to the clay following its delivery to the landfill property. Based on this change in product specification, it is expected that the estimated water demand for liner construction described in the 2003 Draft EIR, RFEIR and 2008 Addendum (125,000 gpd) is no longer required. In addition, as permitting proceeded, Gregory Canyon realized the benefit of increased use of a chemical soil sealant, which would provide for significant dust control (PM_{10} and $PM_{2.5}$) with less water usage. The applicant intends to utilize SOILTAC®, manufactured by Soilworks, LLC.

A report has been prepared by Kleinfelder & Associates (Kleinfelder) providing updated water demand analysis, which is included as Appendix F of the Addendum. The average daily water demand ranges from 34,753 gpd to 66,785 gpd. There is a very substantial likelihood that the available water supply from on-site wells would be adequate to meet the estimated demand at all times during the period of construction, operation, closure and post-closure maintenance of the landfill, based on the usage estimates in the Kleinfelder report. However, in the event that additional water is needed, Gregory Canyon has entered into a contract with the San Gabriel Valley Water Company (SGVWC) to supply up to 80,000 gallons per day (gpd) of recycled water to be used for construction, operation and closure of the landfill.

Thus, this technical memorandum provides an analysis of potential air quality, health risk, and noise impacts from on-site wells, the transportation of recycled water from SGVWC to the landfill site, and the use of a soil sealant on the site.

AIR QUALITY

Construction

Gregory Canyon Landfill Site

As discussed in the GeoLogic Associates report included as Appendix J, there are three watersheds within the landfill property that have a similar surface topography and underlying geology as the Gregory Canyon watershed. Each of these watersheds produces percolating groundwater in the underlying fractured bedrock system that can be accessed by installing one or more pumping wells. GeoLogic Associates has completed an analysis regarding this water source,. The location of the three watersheds is depicted on Figure 1 of Appendix J. The three areas are identified as: Area 1, an 82.5 acre basin on the north side of SR

76 directly north of the former Lucio Dairy; Area 2, a 98.5 acre basin that drains to Couser Canyon and includes portions of Borrow/Stockpile Area B; and Area 3, a 37.8 acre basin that includes portions of Borrow/Stockpile Area A. All are in locations that could be accessed for installation of one or more pumping wells.

Water from wells in Area 1 and Area 3 would be conveyed by pipeline to water tanks located on the ancillary facilities area. Water from wells in Area 2 would be conveyed by pipeline to a smaller storage tank (approximately 10,000 gallons) located within the area to be disturbed for Borrow/Stockpile Area B. Installation of this tank is proposed since there will be an ongoing need for water for dust control related to excavation of daily cover from Borrow/Stockpile Area B. Placement of a tank at this location would minimize the length of the pipeline, pumping costs and use of energy, and the cost and use of energy related to transporting water to Borrow/Stockpile Area B.

A pipeline from the well location in Area 1 and Area 3 to the landfill facilities area or into any pipelines from the existing riparian underflow wells would need to be constructed. This construction would occur concurrently with construction of the landfill access road and bridge, and in the case of Area 1 the relocation of the SR 76 right of way. Construction of the Area 2 well, the pipeline, and the proposed 10,000 gallon storage tank would be concurrent with initial construction.

The ancillary facilities would include facilities necessary to use recycled water for the project, which were previously evaluated in the RFEIR. The initial construction for the project evaluated in Section 4.7 of the 2003 Draft EIR included the construction of the access road, bridge, ancillary facilities, excavation of the landfill footprint and the installation of the waste containment system for Phase I. Pieces of equipment assigned to the initial construction period were conservatively assumed to operate the entire work day and would also be available for the additional improvements. As an example, a backhoe or crane used in the construction of the landfill access road and bridge could also be used during the same time period to trench and place a pipeline. As another example, a drilling rig used to install additional monitoring wells could also be used to install the groundwater wells. Delivery of equipment and materials for landfill construction including pipeline, water tanks, and water well pumps would be coordinated to limit truck trips to less than a total of 2,085 PCE trips per day, which is consistent with the PCE trips analyzed in the 2003 Draft EIR and RFEIR. This same logic holds true in discussing the initial construction related to Borrow/Stockpile Area B. Equipment assigned during this time period would be sufficient to construct the secondary road to this area and place the pipeline from the Area 2 wells to Borrow/Stockpile Area B as well as conduct the initial excavation of Borrow/Stockpile Area B. Thus, the analysis of potential air pollutant emissions provided in the 2003 Draft EIR reflects a conservative estimate of construction equipment and is sufficient to account for the proposed improvements, including the installation of the improvements necessary for the proposed wells, and receipt, storage and use of recycled water.

Off-Site

Gregory Canyon has entered into a contract with the San Gabriel Valley Water Company (SGVWC) to supply up to 80,000 gallons per day (gpd) of recycled water to be used for construction, operation and closure of the landfill. Loading of recycled water would take place at an existing facility located at 2701 North Loma Street, El Monte, CA, and immediately adjacent to their 18-inch pipeline. This location is in an area primarily consisting of light industrial businesses, such as salvage yards or auto body shops. The location of the loading area is shown on **Figure 1**, *Loading Area Location*. The facilities required to deliver recycled water to Gregory Canyon would consist of installation of a pressure regulator (to reduce water pressure), meter,

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0 250 500 Feet

Figure 1
Loading Area Locations

Source: Google Earth, 2009 and PCR Services Corporation, 2009.

Back of Figure 1 Loading Area Locations

standpipe, and possibly a pump, from which recycled water trucks could be filled. SGVWC would access the 18-inch recycled water pipeline by constructing a "T" perpendicular to the pipeline, which would bring the recycled water onto its property.

The recycled water site is located within the 6,745 square mile South Coast Air Basin. California is divided geographically into air basins for the purpose of managing the air resources of the State on a regional basis. The air basins are subject to separate air quality plans and emission budgets/thresholds. An air basin generally has similar meteorological and geographic conditions throughout. The State is currently divided into 15 air basins. The recycled water site is within the South Coast Air Basin and the landfill site is located within the San Diego County Air Basin.

The South Coast Air Quality Management District (SCAQMD) is required, pursuant to the Clean Air Act, to reduce emissions of criteria pollutants for which the South Coast Air Basin is in non-attainment (i.e., ozone, PM_{10}, and $PM_{2.5}$). State and federal air quality standards are often exceeded in many parts of the basin. The monitoring stations nearest to the recycled water site exceed the most stringent ambient air quality standard for ozone and particulate matter. Construction activities associated with the improvements at the recycled water site would contribute to local and regional air pollutant emissions within the South Coast Air Basin.

Based on criteria set forth in the SCAQMD's CEQA Air Quality Handbook,[1] the project would have a significant impact with regard to construction emissions if the following would occur:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 100 pounds per day for nitrogen oxides (NO_X), (2) 75 pounds a day for volatile organic compounds (VOCs), (3) 150 pounds per day for particulate matter less than 10 microns (PM_{10}) or sulfur oxides (SO_X), (4) 55 pounds per day of particulate matter less than 2.5 microns ($PM_{2.5}$) and (5) 550 pounds per day for carbon monoxide (CO).
- Maximum daily localized emissions are greater than the Localized Significance Thresholds (LST), resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO and NO_2. [2]
- Maximum localized PM_{10} or $PM_{2.5}$ emissions during construction are greater than the applicable LSTs, resulting in predicted ambient concentrations in the vicinity of the site to exceed 10.4 μg/m3.

Construction of the recycled water loading area has the potential to create regional air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the recycled water site. In addition, fugitive dust emissions would result from trenching activities. Mobile source emissions, primarily particulate matter (PM) and NO_X, would result from the use of construction equipment such as trenchers, skid steer loaders, and delivery trucks. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

Regional construction-related emissions associated with heavy construction equipment and fugitive dust were calculated using the URBEMIS2007 emissions inventory model originally developed by the California

[1] *http://www.aqmd.gov/ceqa/handbook/signthres.pdf*

[2] *South Coast Air Quality Management, LST Methodology: http://www.aqmd.gov/ceqa/handbook/lst/ Method_final.pdf.*

Air Resources Board (CARB). Model results are provided in Appendix A of this memorandum. The analysis assumed that all construction activities would comply with SCAQMD Rule 403 regarding the control of fugitive dust. A summary of unmitigated maximum daily regional emissions are presented in **Table 1**, *Unmitigated Estimate of Construction Emissions*, along with the SCAQMD regional significance thresholds for each air pollutant. As shown therein, maximum regional construction emissions would not exceed the thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Table 1

Unmitigated Estimate of Construction Emissions [a]
(pounds per day)

Regional Emissions	VOC	NO_X	CO	SO_X	PM_{10} [b]	$PM_{2.5}$ [b]
Maximum Daily Regional Emissions	**7**	**13**	**6**	**<1**	**1**	**1**
SCAQMD Daily Significance Thresholds	75	100	550	150	150	55
Over/(Under)	(68)	(87)	(544)	(150)	(149)	(54)
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Emissions						
	VOC	**NOx**	**CO**	**SO_X**	**PM_{10} [b]**	**$PM_{2.5}$ [b]**
Maximum Daily Localized Emissions	**7**	**9**	**3**	**<1**	**<1**	**<1**
SCAQMD Daily Significance Thresholds	-	96	1,113	-	29	9
Over/(Under)	-	(87)	(1,110)	-	(29)	(9)
Exceed Threshold?	**-**	**No**	**No**	**-**	**No**	**No**

[a] *Emission quantities are rounded to "whole number" values. As such, the "total" values presented herein may be one unit more or less than actual values. Exact values (i.e., non-rounded) are provided in the URBEMIS model printout sheets and/or calculation worksheets that are presented in Appendix A.*

[b] *PM_{10} and $PM_{2.5}$ emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.*

[c] *The SCAQMD LSTs are based on Source Receptor Area 11 (South San Gabriel Valley) for a one acre site with sensitive receptors located 100 meters from construction activity.*

Source: PCR Services Corporation, 2009.

The localized effects of daily construction emissions generated at the recycled water site were evaluated for sensitive receptor locations potentially impacted by the project according to the SCAQMD's localized significance threshold (LST) methodology, which utilizes on-site mass emissions rate look-up tables and project specific modeling, where appropriate. LSTs are only applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA) and distance to the nearest sensitive receptor. For PM_{10} and $PM_{2.5}$, LSTs were derived based on the requirements of SCAQMD Rule 403, Fugitive Dust. The mass rate look-up tables were developed for each SRA and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The LST mass rate look-up tables only apply to projects that have active construction areas that are less than or equal to five acres in size.

A conservative estimate of maximum local (on-site) daily emissions for NO_X, PM_{10}, $PM_{2.5}$, and CO for construction is presented in **Table 1**. Localized construction emissions thresholds, based on the

construction site acreage and distance to the closest off-site sensitive receptor, were obtained from the LST look-up tables and are also listed in **Table 1**. The nearest sensitive receptors are multi-family uses located approximately 100 meters (330 feet) to the northeast of the water facility along Mabel Avenue.

As presented in **Table 1**, construction-related daily maximum localized emissions would not exceed the SCAQMD daily significance thresholds for NO_X, CO, PM_{10}, and $PM_{2.5}$. Therefore, localized construction emissions resulting from construction activities at the recycled water site would not result in a significant short-term impact and no mitigation measures would be required. These emissions would contribute to combined construction emissions assuming the timing of the activities at the recycled water site and the landfill project site occur concurrently. However, the emissions at the recycled water site would occur within a separate Air Basin and would be subject to separate significance thresholds. The pollutant emissions associated with proposed construction activities at the recycled water site would be less than significant in comparison to SCAQMD significance thresholds (i.e., separate Air Basin). In addition, construction emissions associated with the recycled water site in comparison to construction emissions disclosed in the RFEIR for the Olivenhain Municipal Water District's (OMWDs) Santa Fe Valley Reservoir and Pump Station site (the Reservoir Site) would be substantially less.

Operation

Gregory Canyon Landfill Site

The use and delivery of recycled water was addressed in the RFEIR. Although the number of recycled water truck trips is anticipated to decrease as a result of recycled water being obtained from SGVWC, consistent with the 2003 Draft EIR and the RFEIR, the total project trips from all sources including recycled water would be limited to 2,085 trips per day PCE. The SWFP issued for the project would limit the project to a total of 2,085 trips per day from all sources. As the air quality analysis presented in the 2003 Draft EIR and the RFEIR analyzed potential air quality impacts based on a 2,085 trips per day PCE, no changes in operational emissions are anticipated related to recycled water as part of this Addendum. With regard to pumping of additional groundwater at the landfill site, all well pumps would be electrical and would not be a source of additional combustion emissions.

As permitting of the landfill has proceeded, the water demand estimates have been updated. Gregory Canyon realized the benefit of increased use of a chemical soil sealant, which would provide for significant dust control (PM_{10} and $PM_{2.5}$) with less water usage. The applicant intends to utilize SOILTAC®, manufactured by Soilworks, LLC. SOILTAC® is a polymer-based product which creates a flexible solid mass at the soil surface. Typical uses of SOILTAC® include dust control on unpaved dirt roads. The soil sealant would be mixed into the uppermost 6 inches of the road surface and compacted at the time of initial construction, and the completed road surface would be maintained though a topical application of the soil sealant on a periodic basis between quarterly to biannually. Water is used for the application of SOILTAC®. Depending on the rate of application, SOILTAC® can provide a soil crust or at heavier application rates generate qualities similar to cement.

Appendix B of this Technical Memorandum provides product information (e.g., application, use examples, and material safety data sheets (MSDSs) for SOILTAC®. As shown in the MSDS, SOILTAC® does not contain any components with acute, chronic, or carcinogenic exposure limits and are not considered hazardous according to the OSHA Hazardous Communication Standard (29 CFR 1910.1200), Toxic Substance Control Act, or EPA SARA Title III 312 and 313. As a result, storage, application, and use of SOILTAC® would not contribute to any potential air toxic impacts not disclosed in the 2003 Draft EIR and the RFEIR.

Soil sealants when applied also have the potential to contribute to water quality impacts. Environmental studies prepared by the soil sealant manufacturers have been reviewed to determine potential impacts to water quality resulting from runoff. In addition to reviewing the MSDS available for SOILTAC®, laboratory and toxicity tests using EPA methods that were performed by the manufacturer to determine if other pollutants may contribute to a water quality impact were also reviewed.

Laboratory test data for SOILTAC® indicates no detections of pesticides, PCBs, herbicides, or heavy metals, but indicates the presence of vinyl acetate and acetone. Toxicity tests were also performed for SOILTAC® that demonstrates no significant morality or effects on survival.[3] Although organic compounds were detected in SOILTAC®, real world studies indicate that soil sealants are likely to sorb to soils and sediments and therefore unlikely to be transported in water off-site.[4] Although the San Luis Rey River runs through the project site, project components are designed so that runoff would not discharge directly to the river. In addition, the areas in which the soil sealant would be applied are not located within close proximity to the river. The implementation of stormwater Best Management Practices (BMPs), such as desilting basins, bioswales, and percolation areas, as provided in the Storm Water Pollution Prevention Plan (SWPPP) (URS, 2008), would substantially minimize runoff from directly discharging to the river. Therefore, use of soil sealants would not result in significant impacts to surface water quality or beneficial uses of the San Luis Rey River.

Off-Site

Recycled water would be transported from the SGVWC to the landfill site in single-tank, double-axle recycled water trucks with a capacity of between 6,500 gallons and 7,000 gallons. Gregory Canyon would contract with a private water hauler to supply the recycled water trucks. Recycled water trucks would enter the north driveway from Loma Avenue, load at the standpipe, and then exit the south driveway onto Loma Avenue. No turning movements inside the loading facility would be required. At the maximum delivery amount of 80,000 gpd, 12 round trips or 24 one-way truck trips would be required. Recycled water would either be placed into the recycled water storage tank on the landfill property, placed into temporary recycled water storage tanks, or would be left in the truck for temporary storage. Emptied recycled water trucks would depart the landfill property for use by Gregory Canyon to pick up additional loads at SGVWC, or released to service other customers of the recycled water hauler. Truck trip calculations to and from the SGVWC are provided as Appendix C to this technical memorandum.

Regional Impacts

As discussed in the 2003 Draft EIR and the RFEIR, total project trips from all sources including recycled water would be limited to 2,085 trips per day in terms of Passenger Car Equivalents (PCE). The SWFP issued for the project would limit the project to a total of 2,085 trips per day from all sources. When the project reaches a total of 2,085 trips in any day, project facilities would be shut down. Accordingly, on days when more trips are used to truck recycled water to the project site, less trips would be available for other types of vehicles including waste collection trucks. The impacts of the project based upon a total of 2,085 total daily PCE trips were analyzed in detail in the 2003 Draft EIR and the RFEIR. The total limit on daily trips would not change and no additional regional air quality impacts not disclosed in the 2003 Draft EIR and the RFEIR would occur within the San Diego Air Basin. However, additional analysis (provided below) of the haul

[3] *http://www.soiltac.com/environmental-data.aspx*

[4] *Environmental Evaluation of Dust Stabilizer Products. US Army Corps of Engineers. August 2007.*

trucks trips was conducted to demonstrate that no regional impacts would occur within the South Coast Air Basin.

The SCAQMD has established significance thresholds to evaluate potential impacts associated with the incremental increase in criteria air pollutants associated with long-term operations of projects within the Basin. Project operations could result in mobile source emissions from 24 one-way haul truck trips with a trip distance of 80.9 miles within the South Coast Air Basin.[5] Operational emissions were computed using the URBEMIS2007 emissions inventory model. The results of the detailed emissions calculations are provided in **Table 2**, *Maximum Increase in Project-Related Operational Emissions within the South Coast Air Basin),* and URBEMIS2007 model output files are contained in Appendix A. As shown therein, maximum regional operation emissions would not exceed the thresholds for VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Therefore, no new impacts associated with regional operational emissions would occur as a result of recycled water truck trips, and no new mitigation measures would be required.

Table 2

Maximum Increase in Project-Related Operational Emissions within the South Coast Air Basin [a]
(pounds per day)

Emission Source	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Recycled Water Truck Trips [a]	**4**	**53**	**14**	**<1**	**3**	**3**
SCAQMD Significance Threshold	55	55	550	150	150	55
Difference	(51)	(2)	(536)	(150)	(147)	(52)
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

[a] *Mobile source emissions are calculated using the URBEMIS2007 emissions model. Model output files are provided in Appendix A.*

Source: PCR Services Corporation, 2009.

Localized Impacts

Similar to the analysis provided in the 2003 Draft EIR, the RFEIR provided an analysis of CO concentrations at a location near the landfill site. The County of San Diego recommends that assessment methodologies for microscale CO impacts from project-related traffic should follow the current guidance from the Transportation Project-Level Carbon Monoxide Protocol (Protocol) (Institute of Transportation Studies, 1997).[6] Consistent with the Protocol, intersections with LOS of E or F are generally the most appropriate candidates for detailed analysis. Simulations were performed for both the near term cumulative and near term cumulative with project scenarios in order to demonstrate the incremental effect of project emissions as accurately as possible. The near term cumulative scenarios took into account cumulative traffic volumes to assess the impact of project traffic in conjunction with traffic generated by nearby planned projects. The results of the CALINE4 CO modeling were summarized in Table 3 of Appendix D of the RFEIR, in which the maximum one-hour and eight-hour CO concentration levels were well below ambient air quality standards.

[5] *Google Earth, 2009 (Trip distance from 2676 Loma Avenue, South El Monte to the San Diego County Line along Interstate 15).*

[6] *County of San Diego, Guidelines for Determining Significance and Report Format and Content Requirements (Air Quality), 2007.*

The RFEIR analyzed potential localized CO impacts based on substantially more water delivery trucks (i.e., 178 two-way truck trips) occurring along Interstate 15 than the number of trips that would occur with deliveries from the proposed recycled water facility (i.e., 24 one-way truck trips). However, the water delivery trucks would be coming from the north along Interstate 15 instead of from the south. Although it is not expected that this shift in traffic distribution would substantially change the results of the analysis presented in the RFEIR, additional analysis is warranted and is provided below.

The CALINE4 model simulations used A.M. peak-hour traffic volumes at the critical intersections as determined by LLG (2009). The background CO level was obtained from the Escondido monitoring station using the highest one-hour measurement over the last three years of available data (5.7 ppm for the one-hour CO level, and 3.6 ppm for the eight-hour CO level). The results of the CALINE4 CO modeling are summarized in **Table 3**, *Worst-Case Projections of Peak-Hour Carbon Monoxide Concentrations,* for the near term cumulative one-hour and eight-hour CO concentration levels. The future one-hour and eight-hour CO levels for both scenarios are projected to comply with the one-hour and eight-hour CO California and federal standards at all analyzed locations. Therefore, similar to the findings of the 2003 Draft EIR and RFEIR, the proposed project would not create a significant localized air quality impact as a result of project-generated traffic.

Table 3

Worst-Case Projections of Peak-Hour Carbon Monoxide Concentrations

	Estimated CO Concentrations [a]			
	Near Term Cumulative (No Project)		Near Term Cumulative (With Project)	
Intersection	1 Hour (ppm)	8 Hour (ppm)	1 Hour (ppm)	8 Hour (ppm)
SR 76/I-15 northbound ramp	6.8	4.1	6.8	4.1
SR 76/I-15 southbound ramp	8.4	4.9	8.4	4.9
Federal standard	35	9	35	9
State standard	20	9.0	20	9.0
Exceedances	None	None	None	None

[a] *CO concentrations shown above include the maximum background CO levels of 5.7 ppm for the one-hour level, and 3.6 ppm for the eight-hour level.*

Source: PCR Services Corporation, 2009

Consideration was also given to potential localized CO impacts within the South Coast Air Basin related to the recycled water truck trips. The SCAQMD recommends a hot-spot evaluation of potential localized CO impacts when vehicle to capacity (V/C) ratios are increased by two percent or more at intersections with a level of service (LOS) of D or worse during peak hours. Recycled water trips would add no more than 2 truck trips at any intersection within the South Coast Air Basin during a peak hour or increase the V/C ratio by two percent or more at any intersections with a LOS of D or worse during peak hours (LLG (2009)). As a result, no additional analysis of this issue is necessary. Thus, the recycled water truck trips would not cause any new or exacerbate any existing CO hotspots, and, as a result, no impacts related to localized mobile-source CO emissions would occur within the South Coast Air Basin. Therefore, no mitigation measures would be required.

Health Risk Impacts

When considering potential air quality impacts under CEQA, consideration is given to the location of sensitive receptors within close proximity of land uses that emit toxic air contaminants (TACs). The SCAQMD adopted recommendations in their "Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning (2005)," which provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities). The SCAQMD guidelines recommend siting distances for both the development of sensitive land uses in proximity to TAC sources, and the addition of new TAC sources in proximity to existing sensitive land uses. As an example, the SCAQMD recommends that the siting of new sensitive land uses within 1,000 feet of a distribution center that accommodates more than 100 diesel trucks per day be avoided.

As discussed above, residential uses are located approximately 100 meters (330 feet) from the water recycling site. Given the distance from the water recycling site to the sensitive receptors and that the project would only result in 12 round trips (24 one-way trips), the project would be consistent with the guidelines and would not require a detailed health risk assessment

Cumulative Impacts

Since the Applicant has no control over the timing or sequencing of any related projects, any quantitative analysis to ascertain daily construction and operation emissions that assumes multiple, concurrent construction projects would be entirely speculative. For this reason, the SDAPCD's methodology to assess a project's cumulative impact differs from the cumulative impacts methodology employed elsewhere in the EIR.

With respect to the project's construction-period air quality emissions and cumulative Basin-wide conditions, the SDAPCD has developed strategies to reduce criteria pollutant emissions outlined in the Air Quality Attainment Plan (AQAP) pursuant to Federal Clean Air Act mandates. As such, the project would comply with SDAPCD rules and regulations, and implement feasible mitigation measures. Per SDAPCD rules and mandates as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., compliance with rules and regulations, the implementation of all feasible mitigation measures, and compliance with adopted AQAP emissions control measures) would also be imposed on projects Basin-wide. Nevertheless, PM_{10} and NO_X emissions associated with the project are already projected to result in a significant impact to air quality. As such, consistent with the 2003 Draft EIR cumulative impacts to air quality would also be significant and unavoidable.

Within the South Coast Air Basin, the SCAQMD recommends that project specific air quality impacts be used to determine the potential cumulative impacts to regional air quality.[7] As discussed above, peak daily emissions of construction and operation-related pollutants within the South Coast Air Basin would not exceed SCAQMD regional significance thresholds. By applying SCAQMD's cumulative air quality impact methodology, implementation of the revised project would not result in cumulative air quality impacts within the South Coast Air Basin.

[7] *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. South Coast Air Quality Management District, August 2003.*

NOISE

Construction

Gregory Canyon Landfill Site

As discussed in the 2009 Addendum, there are three watersheds within the landfill property that have a similar surface topography and underlying geology as the Gregory Canyon watershed. Each of these watersheds produces percolating groundwater in the underlying fractured bedrock system that can be accessed by installing one or more pumping wells. GeoLogic Associates has completed an analysis regarding this water source, which is included as Appendix J. The location of the three watersheds is depicted on Figure 1 of Appendix J. The three areas are identified as: Area 1, an 82.5 acre basin on the north side of SR 76 directly north of the former Lucio Dairy; Area 2, a 98.5 acre basin that drains to Couser Canyon and includes portions of Borrow/Stockpile Area B; and Area 3, a 37.8 acre basin that includes portions of Borrow/Stockpile Area A. All are in locations that could be accessed for installation of one or more pumping wells.

Water from wells in Area 1 and Area 3 would be conveyed by pipeline to water tanks located on the ancillary facilities area. Water from wells in Area 2 would be conveyed by pipeline to a smaller storage tank (approximately 10,000 gallons) located within the area to be disturbed for Borrow/Stockpile Area B. Installation of this tank is proposed since there will be an ongoing need for water for dust control related to excavation of daily cover from Borrow/Stockpile Area B. Placement of a tank at this location would minimize the length of the pipeline, pumping costs and use of energy, and the cost and use of energy related to transporting water to Borrow/Stockpile Area B.

A pipeline from the well location in Area 1 and Area 3 to the landfill facilities area or into any pipelines from the existing riparian underflow wells would need to be constructed. This construction would occur concurrently with construction of the landfill access road and bridge, and in the case of Area 1 the relocation of the SR 76 right of way. Construction of the Area 2 well, the pipeline, and the proposed 10,000 gallon storage tank would be concurrent with initial construction.

The ancillary facilities would include facilities necessary to use recycled water for the project, which were previously evaluated in the RFEIR. The initial construction for the project evaluated in Section 4.6 of the 2003 Draft EIR included the construction of the access road, bridge, ancillary facilities, excavation of the landfill footprint and the installation of the waste containment system for Phase I. Pieces of equipment assigned to the initial construction period were conservatively assumed to operate the entire work day and would also be available for the additional improvements. As an example, a backhoe or crane used in the construction of the landfill access road and bridge could also be used during the same time period to trench and place a pipeline or install a well. This same logic holds true in discussing the initial construction related to Borrow/Stockpile Area B. Equipment assigned during this time period would be sufficient to construct the secondary road to this area and place the pipeline from the Area 2 wells to Borrow/Stockpile Area B as well as conduct the initial excavation of Borrow/Stockpile Area B.

The analysis provided in Section 4.6 of the 2003 Draft EIR was based on the methodology outlined by the Construction Engineering Research Laboratory (CERL), which is based on representative data from individual construction projects and accounts for the type of construction project (e.g., commercial,

residential, public works, etc.), equipment used, individual equipment noise emissions, and time-usage factors for each phase of construction.[8] The construction noise analysis presented in the 2003 Draft EIR was based on CERL data for public works projects and, therefore, changes in specific activities would not change the construction noise level at a reference distance.[9] In addition, the analysis in the 2003 Draft EIR evaluated noise impacts based on the shortest distance between construction activities and sensitive receptors (e.g., residential uses and biological resources). With the exception of the Area 1 well and Area 2 well and a portion of the associated pipelines, the additional improvements would be within the same footprint of the initial construction period activities (distance to closest receptor would not change) and the initial construction period reflects a conservative estimate of construction equipment and is sufficient to account for the proposed improvements, potential construction noise levels provided in the 2003 Draft EIR and RFEIR would not change. The Area 1 well (north side of SR 76 directly north of the former Lucio Dairy) and Area 2 well (west of Stockpile B) are located approximately 400 feet from the property boundary. The closest residence to the Area 1 well and Area 2 well are located approximately 1,150 feet to the southeast and 3,200 feet to the northeast, respectively with intervening topography between the well site and the residences.[10] Based on the CERL construction noise level used in the 2003 Draft EIR, potential construction noise levels related to Area 1 well and Area 2 well could reach 42 dBA L_{eq} and 51 dBA $L_{eq,}$ respectively or 58 dBA L_{eq} at the property boundary.[11] These construction related noise levels would not exceed the County Noise Ordinance standard of 62.5 dBA L_{eq}. Actual noise levels would likely be less given that the equipment necessary to construct the wells would be minimal.

The Area 1 well and the Area 2 well are located outside of areas previously analyzed. The Area 3 well is located within Borrow/Stockpile Area A. The Area 1 well would be located in an already disturbed area (i.e., location of houses). Based on the biological resource maps for the site, the Area 2 well is located within areas that are vegetated with coastal sage scrub. As indicated in the 2003 Draft EIR, the coastal sage scrub in the project area is considered of low to marginal value for gnatcatchers based on the limited sightings and the absence of nearby core populations. The construction of the wells would not increase the amount or intensity of work on any construction day given the need to protect existing biological resources, but rather would extend the time required to complete the work. As a result, no noise impacts to biological resources would occur. **[Note to County: Please advise if a stand-alone biological resources technical memorandum is warranted]**

Off-Site

As discussed above, Gregory Canyon has entered into a contract with the San Gabriel Valley Water Company (SGVWC) to supply up to 80,000 gpd of recycled water to be used for construction, operation and closure of the landfill. Loading of recycled water would take place at an existing facility located at 2701 North Loma Street, El Monte, CA, and immediately adjacent to their 18-inch pipeline. This location is in an area primarily consisting of light industrial businesses, such as salvage yards or auto body shops. The location of the loading area is shown on Figure 1. The improvements necessary to deliver recycled water to Gregory

[8] *CERL reference data represents a composite of public works projects, there is no way to directly compare with any other specific public works project, and so the CERL methodology is the most appropriate analytical tool.*

[9] *Construction Engineering Research Laboratory, Report N-36, Construction-Site Noise: Specification and Control, Table 10, Page 25, January 1978.*

[10] *The location of sensitive receptors and distances to the receptors is taken from Google Earth, 2009.*

[11] *Predicted construction noise levels include a minimum 10 dBA reduction in noise levels when accounting for the intervening topography. Source: Caltrans, Technical Noise Supplement, 1998 (http://www.dot.ca.gov/hq/env/noise/pub/Technical% 20Noise%20Supplement.pdf)*

Canyon would consist of installation of a pressure regulator (to reduce water pressure), meter, standpipe, and possibly a pump, from which recycled water trucks could be filled. SGVWC would access the 18-inch recycled water pipeline by constructing a "T" perpendicular to the pipeline, which would bring the recycled water onto its property. The use of heavy-duty construction equipment or impact noise generating equipment would be limited in implementing these improvements at the SGVWC facility.

The City of South El Monte does not have an established significance threshold for construction noise. Therefore, compliance with the City's Code (Section 8.20.030(D)), which requires that "no person shall operate or cause or authorize the operation of any tool or equipment used in construction, drilling, repair, alteration or demolition work between the hours of 10 P.M and 7 A.M, or at any time on weekends or holidays, such that the sound therefrom creates a noise disturbance across the real property line of an adjacent or nearby property developed entirely or partially for residential use" shall be considered to result in a less than significant impact.[12]

Noise from the construction activities would be generated by various equipment (e.g., air compressor, backhoe, and truck) during construction operations. Noise levels generated by construction equipment would range from 74 to 81 dBA at a distance of 50 feet from the construction equipment.[13] The nearest residential properties are located approximately 330 feet from the proposed construction activities. Therefore, it is estimated that the maximum aggregated construction related noise levels at the nearest residential receptors (multi-family residences located northeast of the facility along Mabel Avenue) would be up to 65 dBA. Project construction would result in a short-term temporary increase in ambient noise levels at the nearby residential uses. However, construction noise impacts would be less than significant because of the limited nature of this construction work and all construction activity would comply with City's construction hour limits.

Operation

Gregory Canyon Landfill Site

The use and delivery of recycled water was addressed in the RFEIR. Although the number of recycled water truck trips is anticipated to decrease from the number of recycled water trips analyzed in the RFEIR, consistent with the 2003 Draft EIR and the RFEIR, the total project trips from all sources including recycled water would be limited to 2,085 trips per day PCE. The SWFP issued for the project would limit the project to a total of 2,085 trips per day from all sources. As the noise analysis presented in the 2003 Draft EIR and the RFEIR analyzed potential noise impacts based on a 2,085 trips per day PCE, no changes in operational noise levels on site are anticipated related to recycled water as part of the 2009 Addendum. With regard to pumping of additional groundwater at the landfill site, all proposed well pumps would be electrical submersible. Given that the pumps would be within the well and underground, the pumps would not be a source of additional noise at the landfill site.

[12] *Matt Sanchez, Planner, City of South El Monte,, personal communication, September 9, 2009.*

[13] *FHWA Roadway Construction Noise Model User's Guide, 2006*

Offsite (Recycled Water Haul Route Traffic Noise)

As the project would be limited to a total of 2,085 PCE trips per day, which was analyzed in the 2003 Draft EIR and the RFEIR, no additional project-related traffic noise impacts along SR 76 not disclosed in the 2003 Draft EIR or the RFEIR would occur. However, the source of recycled water has changed, and, therefore, additional analysis was conducted to demonstrate whether operational noise impacts would occur.

Recycled water trucks would enter the north driveway of the SGVWC loading site from Loma Avenue, load at the standpipe, and then exit the south driveway along Loma Avenue. Trucks would travel north on Loma Avenue which transitions to Mabel Avenue; turn right onto Rosemead Boulevard; proceed east on SR 60; south on I-15; and east on SR 76 to the landfill access road. As the haul route includes surface streets and freeway segments, the traffic noise analysis reflects the applicable methodology and significance thresholds for each roadway segment.

Surface Streets

Recycled water trucks traveling along Mabel Avenue and Rosemead Boulevard would occur within the City of South El Monte. The City of South El Monte does not have an established significance threshold for traffic noise. However, for the purpose of CEQA evaluation the City does recommend use of the City of Los Angeles CEQA Threshold (2006).[14] The following factors are set forth for determining on a case-by-case basis whether the proposed project would have a potential impact:

- The proposed project would cause ambient noise levels to increase by 5 dBA CNEL or more and the resulting noise falls on a land use within an area categorized as either "clearly compatible" or "normally compatible" (see **Table 4**, *City of South El Monte Land Use Compatibility for Community Noise,* for description of these categories);
- The proposed project would cause ambient noise levels to increase by 3 dBA CNEL or more and the resulting noise falls on a land use within an area categorized as either "requires analysis and mitigation or normally incompatible" or "clearly incompatible";

Table 4

City of South El Monte Land Use Compatibility for Community Noise

	Community Noise Exposure CNEL, dBA			
Land Use	**Clearly Compatible**	**Normally Compatible**	**Requires Analysis & Mitigation**	**Clearly Incompatible**
Single-Family, Duplex, Mobile Homes	50 to 55	55 to 60	60 to 75	Above 75
Residential, Retail, and Service Commercial	50 to 55	55 to 65	65 to 75	Above 75
Hotel, Motel, Transient Lodging	50 to 60	60 to 70	70 to 80	Above 80
General Retail, Bank, Restaurant, Entertainment	50 to 65	65 to 80	Above 80	—

[14] *Matt Sanchez, Planner, City of South El Monte,, personal communication, September 9, 2009.*

Table 4

City of South El Monte Land Use Compatibility for Community Noise

Land Use	Community Noise Exposure CNEL, dBA			
	Clearly Compatible	Normally Compatible	Requires Analysis & Mitigation	Clearly Incompatible
Professional Offices, Research and Development, City Hall	50 to 65	50 to 75	75 to 80	Above 80
Automobile Sales and Services, Manufacturing, Warehousing, Wholesale, Utilities	50 to 75	Above 75	—	—
Hospital, Church, Library, School	50 to 55	55 to 65	65 to 75	Above 75
Parks	50 to 65	65 to 70	70 to 75	Above 75

Clearly Compatible: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Normally Compatible: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Requires Analysis and Mitigation: Potential noise impacts exist. If new construction or development is proposed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Incompatible: New construction or development should generally not be undertaken.

Source: City of South El Monte, General Plan, Public Safety Element, Table PS-1, 2000.

The above thresholds are based on the fact that people judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness." A change in sound level of 3 dB is considered "just perceptible," a change in sound level of 5 dB is considered "clearly noticeable," and a change of 10 dB is recognized as "twice as loud."[15] In addition, the Community Noise Equivalent Level (CNEL) descriptor is used to assess noise levels over a given 24-hour time period. CNEL is the time average of all A-weighted sound levels for a 24-hour period with a 10 dBA adjustment (upward) added to the sound levels which occur in the night (10 P.M. to 7 A.M.) and a 5 dBA adjustment (upward) added to the sound levels which occur in the evening (7 P.M. to 10 P.M.). These penalties attempt to account for increased human sensitivity to noise during the quieter nighttime periods, particularly where sleep is the most probable activity.

Land along the haul route within the city of South El Monte is generally designated in the City's General Plan as Commercial-Manufacturing and Industrial. The area is zoned Commercial-Manufacturing and Industrial with a normally acceptable noise level of 75 dBA CNEL. However, several residences are located along Mabel Avenue and Rosemead Avenue. Therefore, this analysis assumed a normally acceptable noise level of 65 dBA CNEL, which is consistent with mixed use (see **Table 4**). The CNEL generated by traffic on the roadways was established using roadway noise equations provided in the California Department of Transportation (Caltrans) Technical Noise Supplement (TeNS) document and traffic data (e.g., average daily trips, vehicle

[15] *Engineering Noise Control, Bies & Hansen, 1988.*

mix, and day/evening/night distribution) provided by the project traffic consultant.[16] This methodology allows for the definition of roadway configurations, barrier information (if any), and receiver locations.

Estimates of roadway noise levels in terms of CNEL were computed for the surface streets that would be used for the recycled water haul route and are shown in **Table 5**, *Estimated Traffic Noise Level Increases Along the Recycled Water Haul Route*. (Noise worksheets are provided in Appendix D of this technical memorandum.) The values do not take into account the possible effects of existing noise barriers or topography. The table indicates that the area along Rosemead Boulevard has an estimated existing noise level without the project in excess of 65 CNEL. The area along Mabel Avenue has an estimated existing noise level without the project of 57 CNEL. Based on the existing noise levels along these roadway segments, the applicable traffic-related incremental noise increase significance threshold for Rosemead Boulevard and Mabel Avenue are 3 dBA and 5 dBA, respectively.

Table 5

Estimated Traffic Noise Level Increases Along the Recycled Water Haul Route

Highway/Road Segment	Ambient Traffic Noise Level (CNEL, dBA)	Recycled Water Truck Noise Level (CNEL, dBA)	Combined Noise Level (CNEL, dBA)	Incremental Noise Increase Due Solely to the Landfill (CNEL, dBA)[a]	Threshold of Significance	Exceed Significance Threshold?
Surface Streets						
Mabel Avenue						
West of Rosemead Blvd.	57.3	53.6	58.8	1.5	5.0 dBA	No
Rosemead Boulevard						
Mabel Avenue to SR 60	74.0	52.9	74.0	0.0	3.0 dBA	No
Highway						
State Route 60						
I-605 to SR 57	80.3	50.1	80.3	0.0	Allowable	No
SR 57 to I-15	80.9	50.0	80.9	0.0	Project	No
Interstate 15					Noise	
SR 60 to SR 91	78.7	49.8	78.7	0.0	Exposure	No
SR 91 to SR 215	77.3	49.8	77.3	0.0	of 66 dBA	No
SR 79 to SR 76	78.1	50.0	78.1	0.0	or	No
					Increment of 0.1 dBA	

Noise worksheets are presented in Appendix D.

[a] The incremental noise levels assume water haul trucks park at the recycled water facility. In the event that haul trucks would access the site from a remote location, the incremental traffic noise level along Mabel Avenue would increase from 1.5 dBA to 1.7 dBA. Incremental noise levels along all other analyzed roadway segments would remain 0.0 dBA. Traffic related noise levels along all analyzed roadway segments in this technical memorandum would remain less than significant.

Source: PCR Services Corporation, 2009

[16] *The roadway noise calculation procedures provided in TeNS are consistent with Federal Highway Administration RD-77-108 "industry standard" roadway noise prediction methodologies.*

Table 5 shows the estimated change in roadway noise levels that would result from existing traffic, recycled water truck trips alone, and the combined traffic noise levels. Column 4 of this table shows that project-generated traffic (24 one-way trips) would result in estimated CNEL noise level increase over existing noise levels of 1.5 dBA along Mabel Avenue and 0.0 dBA along Rosemead Boulevard. As these noise level increases are well below the City of South El Monte incremental increase significance threshold (3 dBA), recycled water truck activity along surface streets would result in a less than significant noise impact.

Freeway Segments

As discussed above, recycled water trucks would travel along SR 60 and Interstate 15. Potential noise impacts along the freeway segments were analyzed based on guidance from the Federal Transit Administration (FTA) (Transit Noise and Vibration Impact Assessment, May 2006). The FTA's noise significance thresholds account for the existing traffic noise level as well as the project's contribution to the overall noise level. As the existing level of ambient noise increases, the allowable level of transit noise increases, but the total amount of community noise exposure allowed to increase is reduced. This accounts for the unexpected result that a project noise exposure which is less than the existing noise exposure can still cause an impact. **Table 6**, *FTA Noise Levels Defining Significant Impact,* shows the level of transit noise allowed for different existing levels of exposure. As shown in **Table 6**, a noise exposure increase of 3.5 dBA could result in no impact if the existing noise exposure is 55 dBA or less, but only a 1.2 dBA increase when the existing nose exposure is 70 dBA.

Table 5 shows the estimated change in freeway noise levels that would result from existing traffic, recycled water truck trips alone, and the combined traffic noise levels. Column 3 of this table shows that recycled water-generated traffic would result in a maximum estimated CNEL noise level of 50.1 dBA, which is well below the FTA's allowable project noise exposure of 66 dBA for an existing noise exposure of 80 dBA. Column 4 of this table shows that project-generated traffic would not change the overall CNEL noise level along any of the analyzed freeway segments. Therefore, the recycled water trucks would result in a less than significant noise impact along the freeway haul route.

Cumulative Impacts

Noise from construction of the recycled water loading facility and the landfill would be localized, thereby potentially affecting areas immediately surrounding or between each particular project site. Construction noise generated from the SGVWC and landfill sites are located sufficiently distant from sensitive receptors such that distance attenuation and intervening topography would reduce construction noise and would not result in a noticeable increase in noise at sensitive receptors near the project site. In addition, each site would comply with conditions set forth in the Municipal Code or County Code, to the extent feasible. Consistent with the 2003 Draft EIR and RFEIR, cumulative construction and onsite operational noise impacts to adjacent sensitive receptors would be less than significant. However, as discussed in the 2003 Draft EIR and the RFEIR cumulative traffic noise levels would remain significant and unavoidable for roadway segments analyzed in the 2003 Draft EIR and the RFEIR. An analysis for roadway segments near the SGVWC site was performed to determine potential cumulative noise impacts. Project level thresholds were used in the cumulative analysis in order to provide a more conservative comparison. As shown in Table 7, *Estimated Cumulative Traffic Noise Level Increases Along the Recycled Water Haul Route*, no roadway segments analyzed as part of this Addendum for the recycled water haul route would result in a cumulative traffic noise impact.

Table 6

FTA Noise Levels Defining Significant Impact

CNEL in dBA

Existing Noise Exposure	Allowable Project Noise Exposure	Allowable Combined Total Noise Exposure	Allowable Noise Exposure Increase
55	<56	58.5	3.5
56	<56	59.0	3.0
57	<57	60.0	3.0
58	<57	60.5	2.5
59	<58	61.5	2.5
60	<58	62.1	2.1
61	<59	63.1	2.1
62	<59	63.8	1.8
63	<60	64.8	1.8
64	<61	65.8	1.8
65	<61	66.5	1.5
66	<62	67.5	1.5
67	<63	68.5	1.5
68	<63	69.2	1.2
69	<64	70.2	1.2
70	<65	71.2	1.2
71	<66	72.2	1.2
72	<66	73.0	1.0
73	<66	73.8	0.8
74	<66	74.6	0.6
75	<66	75.5	0.5
76	<66	76.4	0.4
77	<66	77.3	0.3
78	<66	78.3	0.3
79	<66	79.2	0.2
80	<66	80.2	0.2
81	<66	81.1	0.1
82	<66	82.1	0.1
83	<66	83.1	0.1

Source: FTA, Transit Noise and Vibration Impact Assessment, 2006 and PCR Services Corporation, 2009

CONCLUSION

Based on the above analysis, changes in the Gregory Canyon Landfill project would not result in any new or substantially different project-related cumulative or secondary air quality, health risk, or noise impacts not disclosed in the 2003 Draft EIR or the RFEIR.

Table 7

Estimated Cumulative Traffic Noise Level Increases Along the Recycled Water Haul Route

Highway/Road Segment	Ambient Traffic Noise Level (CNEL, dBA)	Recycled Water Truck Noise Level (CNEL, dBA)	Ambient Growth Traffic Noise Level (CNEL, dBA)	Combined (Cumulative) Noise Level (CNEL, dBA)	Incremental Cumulative Noise Increase (CNEL, dBA)[a]	Threshold of Significance	Exceed Significance Threshold?
Surface Streets							
Mabel Avenue							
West of Rosemead Blvd.	57.3	53.6	57.5	59.3	1.8	5.0 dBA	No
Rosemead Boulevard							
Mabel Avenue to SR 60	74.0	52.9	74.3	74.4	0.1	3.0 dBA	No
Highway							
State Route 60							
I-605 to SR 57	80.3	50.1	80.7	80.7	0.0	Allowable Project Noise Exposure of 66 dBA or Increment of 0.1 dBA	No
SR 57 to I-15	80.9	50.0	81.3	81.3	0.0		No
Interstate 15							
SR 60 to SR 91	78.7	49.8	79.1	79.1	0.0		No
SR 91 to SR 215	77.3	49.8	77.7	77.7	0.0		No
SR 79 to SR 76	78.1	50.0	78.5	78.5	0.0		No

Noise worksheets are presented in Appendix D.

[a] The incremental noise levels assume water haul trucks park at the recycled water facility. In the event that haul trucks would access the site from a remote location, the incremental traffic noise level along Mabel Avenue would increase from 1.8 dBA to 2.0 dBA. Incremental noise levels along all other analyzed roadway segments would less than 0.1 dBA. Traffic related noise levels along all analyzed roadway segments in this technical memorandum would remain less than significant.

Source: PCR Services Corporation, 2009

Appendix A – Air Quality Analysis Worksheets

9/24/2009 10:13:18 AM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: S:\ACTIVE\PROJECTS\Gregory Canyon\Addendum Water 2009\Working\AQ Noise HRA\gclf.urb924

Project Name: GCLF Recyled Water Site (Operations)

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 7/1/2011-7/1/2011 Active	3.69	**52.97**	**13.57**	**0.07**	**0.27**	**2.74**	**3.01**	**0.09**	**2.52**	**2.61**	**7,176.74**
Mass Grading 07/01/2011-	3.69	52.97	13.57	0.07	0.27	2.74	3.01	0.09	2.52	2.61	7,176.74
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	3.69	52.97	13.57	0.07	0.27	2.74	3.01	0.09	2.52	2.61	7,176.74
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: Mass Grading 7/1/2011 - 7/1/2011 - Type Your Description Here

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1944

Off-Road Equipment:

Gregory Canyon Reclaimed Water Station

CALINE4 Modeling Results and Estimated Local 1-Hour Carbon Monoxide Concentrations (ppm)

Projected Background 1-Hour CO Concentrations (ppm) [a]

Monitoring Station: San Diego

Year	1-Hr Concentration
2006	5.7

Intersection and Receptor Locations	Future Without Project		Future With Project		
	Traffic CO Contribution [b]	Estimated Local CO Concentration [c]	Traffic CO Contribution [b]	Estimated Local CO Concentration [c]	Exceedance of Significance Threshold [d]
NB I-15 AND SR-76 AM					
NE	1.0	6.7	1.0	6.7	NO
SE	1.1	6.8	1.1	6.8	NO
SW	0.9	6.6	0.9	6.6	NO
NW	0.8	6.5	0.8	6.5	NO
SB I-15 AND SR-76 AM					
NE	2.5	8.2	2.5	8.2	NO
SE	2.4	8.1	2.4	8.1	NO
SW	2.7	8.4	2.7	8.4	NO
NW	2.1	7.8	2.1	7.8	NO

a Based on guidance provided by the AQMD Air Quality Analysis Guidance Handbook.

b The 1-hour traffic contribution (ppm) is determined by inputing total traffic volumes into the CALINE4 model.

c The estimated local concentration is the traffic contribution + the background concentration.

d The California Ambient Air Quality Standard for 1-hour CO concentrations is 20 ppm.

Gregory Canyon Reclaimed Water Station

CALINE4 Modeling Results and Estimated Local 8-Hour Carbon Monoxide Concentrations (ppm)

Projected Background 8-Hour CO Concentrations (ppm) [a]	
Monitoring Station: San Diego	Average Persistence Factor = 0.70
Year: 2006 — 8-Hr Concentration: 3.6	

Intersection and Receptor Locations	Future Without Project: Traffic CO Contribution [b]	Future Without Project: Estimated Local CO Concentration [c]	Future With Project: Traffic CO Contribution [b]	Future With Project: Estimated Local CO Concentration [c]	Future With Project: Exceedance of Significance Threshold [d]
NB I-15 AND SR-76 AM					
NE	0.5	4.1	0.5	4.1	NO
SE	0.5	4.1	0.5	4.1	NO
SW	0.5	4.1	0.5	4.1	NO
NW	0.4	4.0	0.4	4.0	NO
SB I-15 AND SR-76 AM					
NE	1.3	4.9	1.3	4.9	NO
SE	1.1	4.7	1.1	4.7	NO
SW	1.3	4.9	1.3	4.9	NO
NW	1.0	4.6	1.0	4.6	NO

a Based on guidance provided by the AQMD Air Quality Analysis Guidance Handbook.

b The persistence factor is calculated as recommended in Table B.15 in the Transportation Project-Level Carbon Monoxide Protocol (Institute of Transportation Stud UC Davis, Revised 1997). This is a generalized persistence factor likely to provide a conservative estimate in most situations.

c The estimated local concentration is the traffic contribution + the background concentration.

d The California Ambient Air Quality Standard for 8-hour CO concentrations is 9 ppm.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION

JOB: NB I-15 AND SR-76 AM NP
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 0. (FT)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	338	.3	.0	35.0
B. NA	*	8	-500	8	0	* AG	146	9.2	.0	33.0
C. ND	*	8	0	8	500	* AG	519	9.6	.0	33.0
D. NE	*	8	500	8	1500	* AG	519	.3	.0	35.0
E. SF	*	-8	1500	-8	500	* AG	0	.3	.0	35.0
F. SA	*	-8	500	-8	0	* AG	0	9.2	.0	33.0
G. SD	*	-8	0	-8	-500	* AG	0	6.0	.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	0	.3	.0	35.0
I. WF	*	1500	15	500	15	* AG	259	.3	.0	35.0
J. WA	*	500	15	0	15	* AG	259	6.7	.0	33.0
K. WD	*	0	15	-500	15	* AG	392	.3	.0	33.0
L. WE	*	-500	15	-1500	15	* AG	392	.3	.0	35.0
M. EF	*	-1500	-15	-500	-15	* AG	706	.3	.0	35.0
N. EA	*	-500	-15	0	-15	* AG	246	6.5	.0	33.0
O. ED	*	0	-15	500	-15	* AG	392	.3	.0	33.0
P. EE	*	500	-15	1500	-15	* AG	392	.3	.0	35.0
Q. NL	*	0	0	8	-500	* AG	192	9.2	.0	33.0
R. SL	*	0	0	-8	500	* AG	0	9.2	.0	33.0
S. WL	*	0	0	500	15	* AG	0	6.5	.0	33.0
T. EL	*	0	0	-500	-15	* AG	460	6.9	.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	33	6.0
2. SE3	*	25	-33	6.0
3. SW3	*	-25	-33	6.0
4. NW3	*	-25	33	6.0
5. NE7	*	38	46	6.0
6. SE7	*	38	-46	6.0
7. SW7	*	-38	-46	6.0
8. NW7	*	-38	46	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* PRED BRG (DEG)	* CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	* 260.	* 1.0	*	.0	.0	.4	.0	.0	.0	.0	.0
2. SE3	* 355.	* 1.1	*	.0	.0	1.0	.0	.0	.0	.0	.0
3. SW3	* 8.	* .9	*	.0	.0	.6	.0	.0	.0	.0	.0
4. NW3	* 173.	* .8	*	.0	.2	.0	.0	.0	.0	.0	.0
5. NE7	* 259.	* .7	*	.0	.0	.3	.0	.0	.0	.0	.0
6. SE7	* 353.	* .7	*	.0	.0	.6	.0	.0	.0	.0	.0
7. SW7	* 10.	* .7	*	.0	.0	.5	.0	.0	.0	.0	.0
8. NW7	* 171.	* .6	*	.0	.2	.0	.0	.0	.0	.0	.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.4
2. SE3	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW3	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.2
4. NW3	*	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.2
5. NE7	*	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.3
6. SE7	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. SW7	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
8. NW7	*	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.1

```
         CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                  JUNE 1989 VERSION
                  PAGE   1

              JOB:   NB I-15 AND SR-76 AM WP
              RUN:                  (WORST CASE ANGLE)
       POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
       U=    .5 M/S            Z0= 100. CM           ALT=     0. (FT)
     BRG= WORST CASE           VD=   .0 CM/S
    CLAS=     7 (G)            VS=   .0 CM/S
    MIXH= 1000. M              AMB=   .0 PPM
   SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	338	.3	.0	35.0
B. NA	8	-500	8	0	AG	146	9.2	.0	33.0
C. ND	8	0	8	500	AG	521	9.6	.0	33.0
D. NE	8	500	8	1500	AG	521	.3	.0	35.0
E. SF	-8	1500	-8	500	AG	0	.3	.0	35.0
F. SA	-8	500	-8	0	AG	0	9.2	.0	33.0
G. SD	-8	0	-8	-500	AG	0	6.0	.0	33.0
H. SE	-8	-500	-8	-1500	AG	0	.3	.0	35.0
I. WF	1500	15	500	15	AG	261	.3	.0	35.0
J. WA	500	15	0	15	AG	261	6.7	.0	33.0
K. WD	0	15	-500	15	AG	392	.3	.0	33.0
L. WE	-500	15	-1500	15	AG	392	.3	.0	35.0
M. EF	-1500	-15	-500	-15	AG	708	.3	.0	35.0
N. EA	-500	-15	0	-15	AG	248	6.5	.0	33.0
O. ED	0	-15	500	-15	AG	394	.3	.0	33.0
P. EE	500	-15	1500	-15	AG	394	.3	.0	35.0
Q. NL	0	0	8	-500	AG	192	9.2	.0	33.0
R. SL	0	0	-8	500	AG	0	9.2	.0	33.0
S. WL	0	0	500	15	AG	0	6.5	.0	33.0
T. EL	0	0	-500	-15	AG	460	6.9	.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	33	6.0
2. SE3	25	-33	6.0
3. SW3	-25	-33	6.0
4. NW3	-25	33	6.0
5. NE7	38	46	6.0
6. SE7	38	-46	6.0
7. SW7	-38	-46	6.0
8. NW7	-38	46	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	260.	1.0	.0	.0	.4	.0	.0	.0	.0	.0
2. SE3	355.	1.1	.0	.0	1.0	.0	.0	.0	.0	.0
3. SW3	8.	.9	.0	.0	.6	.0	.0	.0	.0	.0
4. NW3	173.	.8	.0	.2	.0	.0	.0	.0	.0	.0
5. NE7	259.	.7	.0	.0	.3	.0	.0	.0	.0	.0
6. SE7	353.	.7	.0	.0	.6	.0	.0	.0	.0	.0
7. SW7	10.	.7	.0	.0	.5	.0	.0	.0	.0	.0
8. NW7	171.	.6	.0	.2	.0	.0	.0	.0	.0	.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.4
2. SE3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW3	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.2
4. NW3	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.2
5. NE7	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.3
6. SE7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. SW7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
8. NW7	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SB I-15 AND SR-76 AM NP
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 0. (FT)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	0	.3	.0	35.0
B. NA	8	-500	8	0	AG	0	8.5	.0	33.0
C. ND	8	0	8	500	AG	0	5.6	.0	33.0
D. NE	8	500	8	1500	AG	0	.3	.0	35.0
E. SF	-8	1500	-8	500	AG	830	.3	.0	35.0
F. SA	-8	500	-8	0	AG	713	10.7	.0	33.0
G. SD	-8	0	-8	-500	AG	463	6.0	.0	33.0
H. SE	-8	-500	-8	-1500	AG	463	.3	.0	35.0
I. WF	1500	15	500	15	AG	357	.3	.0	35.0
J. WA	500	15	0	15	AG	265	7.1	.0	33.0
K. WD	0	15	-500	15	AG	978	7.4	.0	33.0
L. WE	-500	15	-1500	15	AG	978	.3	.0	35.0
M. EF	-1500	-15	-500	-15	AG	895	.3	.0	35.0
N. EA	-500	-15	0	-15	AG	895	10.1	.0	33.0
O. ED	0	-15	500	-15	AG	641	5.4	.0	33.0
P. EE	500	-15	1500	-15	AG	641	.3	.0	35.0
Q. NL	0	0	8	-500	AG	0	8.5	.0	33.0
R. SL	0	0	-8	500	AG	117	8.5	.0	33.0
S. WL	0	0	500	15	AG	92	7.1	.0	33.0
T. EL	0	0	-500	-15	AG	0	7.1	.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	33	6.0
2. SE3	25	-33	6.0
3. SW3	-25	-33	6.0
4. NW3	-25	33	6.0
5. NE7	38	46	6.0
6. SE7	38	-46	6.0
7. SW7	-38	-46	6.0
8. NW7	-38	46	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	263.	2.5	.0	.0	.0	.0	.0	.4	.0	.0
2. SE3	277.	2.4	.0	.0	.0	.0	.0	.0	.2	.0
3. SW3	5.	2.7	.0	.0	.0	.0	.0	1.4	.1	.0
4. NW3	262.	2.1	.0	.0	.0	.0	.0	.0	.0	.0
5. NE7	260.	1.8	.0	.0	.0	.0	.0	.3	.0	.0
6. SE7	280.	1.6	.0	.0	.0	.0	.0	.0	.1	.0
7. SW7	8.	1.8	.0	.0	.0	.0	.0	.9	.0	.0
8. NW7	258.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	.0	.0	1.3	.0	.0	.6	.0	.0	.0	.0	.0	.0
2. SE3	.0	.0	.5	.0	.0	1.6	.1	.0	.0	.0	.0	.0
3. SW3	.0	.0	.3	.0	.0	.6	.0	.0	.0	.2	.0	.0
4. NW3	.0	.0	1.5	.0	.0	.6	.0	.0	.0	.0	.0	.0
5. NE7	.0	.0	.8	.0	.0	.6	.0	.0	.0	.0	.0	.0
6. SE7	.0	.0	.5	.0	.0	1.0	.0	.0	.0	.0	.0	.0
7. SW7	.0	.0	.3	.0	.0	.5	.0	.0	.0	.1	.0	.0
8. NW7	.0	.0	.8	.0	.0	.6	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SB I-15 AND SR-76 AM WP
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 0. (FT)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	0	.3	.0	35.0
B. NA	8	-500	8	0	AG	0	8.5	.0	33.0
C. ND	8	0	8	500	AG	0	5.6	.0	33.0
D. NE	8	500	8	1500	AG	0	.3	.0	35.0
E. SF	-8	1500	-8	500	AG	832	.3	.0	35.0
F. SA	-8	500	-8	0	AG	713	10.7	.0	33.0
G. SD	-8	0	-8	-500	AG	463	6.0	.0	33.0
H. SE	-8	-500	-8	-1500	AG	463	.3	.0	35.0
I. WF	1500	15	500	15	AG	357	.3	.0	35.0
J. WA	500	15	0	15	AG	265	7.1	.0	33.0
K. WD	0	15	-500	15	AG	978	7.4	.0	33.0
L. WE	-500	15	-1500	15	AG	978	.3	.0	35.0
M. EF	-1500	-15	-500	-15	AG	895	.3	.0	35.0
N. EA	-500	-15	0	-15	AG	895	10.1	.0	33.0
O. ED	0	-15	500	-15	AG	643	5.4	.0	33.0
P. EE	500	-15	1500	-15	AG	643	.3	.0	35.0
Q. NL	0	0	8	-500	AG	0	8.5	.0	33.0
R. SL	0	0	-8	500	AG	119	8.5	.0	33.0
S. WL	0	0	500	15	AG	92	7.1	.0	33.0
T. EL	0	0	-500	-15	AG	0	7.1	.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	33	6.0
2. SE3	25	-33	6.0
3. SW3	-25	-33	6.0
4. NW3	-25	33	6.0
5. NE7	38	46	6.0
6. SE7	38	-46	6.0
7. SW7	-38	-46	6.0
8. NW7	-38	46	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	263.	2.5	.0	.0	.0	.0	.0	.4	.0	.0
2. SE3	277.	2.4	.0	.0	.0	.0	.0	.0	.2	.0
3. SW3	5.	2.7	.0	.0	.0	.0	.0	1.4	.1	.0
4. NW3	262.	2.1	.0	.0	.0	.0	.0	.0	.0	.0
5. NE7	260.	1.8	.0	.0	.0	.0	.0	.3	.0	.0
6. SE7	280.	1.6	.0	.0	.0	.0	.0	.0	.1	.0
7. SW7	8.	1.8	.0	.0	.0	.0	.0	.9	.0	.0
8. NW7	258.	1.4	.0	.0	.0	.0	.0	.0	.0	.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	.0	.0	1.3	.0	.0	.6	.0	.0	.0	.0	.0	.0
2. SE3	.0	.0	.5	.0	.0	1.6	.1	.0	.0	.0	.0	.0
3. SW3	.0	.0	.3	.0	.0	.6	.0	.0	.0	.2	.0	.0
4. NW3	.0	.0	1.5	.0	.0	.6	.0	.0	.0	.0	.0	.0
5. NE7	.0	.0	.8	.0	.0	.6	.0	.0	.0	.0	.0	.0
6. SE7	.0	.0	.5	.0	.0	1.0	.0	.0	.0	.0	.0	.0
7. SW7	.0	.0	.3	.0	.0	.5	.0	.0	.0	.1	.0	.0
8. NW7	.0	.0	.8	.0	.0	.6	.0	.0	.0	.0	.0	.0

Los Angeles County EMFAC - Year 2014 (CO).rts

Title : Los Angeles County Avg Winter CYr 2014 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/09/24 11:57:41
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Winter
Area : Los Angeles

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Los Angeles County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 60F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
3	2.875	4.688	7.268	16.185	27.401	28.940	4.756
4	2.791	4.537	7.086	16.185	27.401	28.940	4.644
5	2.712	4.395	6.917	16.185	27.401	28.940	4.540
6	2.638	4.261	6.561	14.977	25.011	27.838	4.350
7	2.567	4.134	6.236	13.867	22.883	26.826	4.173
8	2.499	4.015	5.939	12.846	20.985	25.897	4.009
9	2.435	3.902	5.667	11.907	19.289	25.043	3.857
10	2.375	3.795	5.417	11.043	17.772	24.260	3.715
11	2.317	3.694	5.188	10.250	16.411	23.542	3.583
12	2.261	3.598	4.976	9.523	15.190	22.884	3.459
13	2.208	3.507	4.781	8.857	14.093	22.283	3.344
14	2.158	3.420	4.601	8.248	13.105	21.733	3.236
15	2.110	3.338	4.434	7.694	12.214	21.232	3.135
16	2.064	3.259	4.280	7.192	11.411	20.778	3.041
17	2.019	3.184	4.136	6.738	10.685	20.367	2.953
18	1.977	3.113	4.003	6.331	10.028	19.996	2.871
19	1.936	3.045	3.879	5.959	9.433	19.665	2.794
20	1.897	2.979	3.763	5.709	8.894	19.371	2.725
21	1.860	2.917	3.655	5.477	8.405	19.113	2.661
22	1.823	2.857	3.554	5.261	7.962	18.890	2.599
23	1.789	2.800	3.460	5.059	7.559	18.700	2.541
24	1.755	2.746	3.372	4.871	7.193	18.543	2.486
25	1.723	2.693	3.289	4.696	6.860	18.418	2.434
26	1.692	2.643	3.212	4.533	6.558	18.324	2.385
27	1.662	2.595	3.140	4.381	6.284	18.262	2.338
28	1.634	2.549	3.072	4.240	6.035	18.231	2.293
29	1.606	2.505	3.008	4.108	5.809	18.232	2.251
30	1.579	2.463	2.949	3.985	5.604	18.264	2.211
31	1.554	2.422	2.893	3.871	5.419	18.328	2.173
32	1.529	2.384	2.841	3.765	5.253	18.426	2.138
33	1.505	2.346	2.792	3.667	5.103	18.557	2.104
34	1.482	2.311	2.747	3.577	4.968	18.723	2.072
35	1.460	2.277	2.705	3.494	4.849	18.926	2.042
36	1.439	2.244	2.665	3.418	4.742	19.167	2.014
37	1.419	2.213	2.629	3.348	4.649	19.447	1.987
38	1.399	2.184	2.595	3.285	4.569	19.769	1.962
39	1.380	2.155	2.564	3.228	4.499	20.136	1.939
40	1.362	2.128	2.536	3.178	4.442	20.550	1.918

Appendix B – SOILTAC® Manufacturer Specifications

Soilworks®,LLC
2450 S. Gilbert Rd., Ste 210, Gilbert, AZ 85286-1583
T: 800-545-5420 O: 480-545-5454 F: 480-545-5456
www.Soilworks.com Info@Soilworks.com
Specializing in Soil Stabilization and Dust Control

MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION

PRODUCT NAME	**SOILTAC***
	*SOILTAC is a registered trademark of Soilworks, LLC.
MANUFACTURER	Soilworks, LLC. 681 North Monterey Street Gilbert, Arizona 85233-8318 USA www.soilworks.com
TELEPHONE NUMBER	800-545-5420
ONLINE INFORMATION	www.Soiltac.com
EMERGENCY TELEPHONE NUMBERS	800-545-5420 (National & International)
REVISION DATE	November 2006 *(supersedes March 2006)*
PHYSICAL FORM	Mobile liquid
COLOR	Milky White (transparent once cured)
ODOR	Mild / Slight (no odor once cured)
C.A.S. CHEMICAL NAME	Mixture
SYNONYMS	Soil stabilizer, soil stabilization agent, soil solidifier, soil amendment, soil additive, soil crusting agent, dust control agent, dust inhibitor, dust palliative, dust suppressant, dust retardant
CHEMICAL FAMILY	Vinyl Copolymer Emulsion
EMPIRICAL FORMULA	Mixture
INTENDED USE	Soil stabilization, soil solidification, fugitive dust control, dust suppression, dust abatement, tackifier, dust abatement, PM_{10} and $PM_{2.5}$ air quality control and erosion control

SECTION 2 - INGREDIENTS

	%	CAS Number	Chemical Name
1.	50-60	Proprietary	Vinyl Copolymer
2.	40-60	7732-18-5	Water

SECTION 3 - HEALTH HAZARDS

ROUTES OF ENTRY

Eye Contact, Skin Contact, Ingestion and Inhalation

SIGNS AND SYMPTOMS OF ACUTE EXPOSURE

Eyes: Direct contact with this material may cause eye irritation including lachrymation (tearing).
Inhalation: Inhalation of vapor or aerosol may cause irritation to the respiratory tract (nose, throat, and lungs).
Skin: Contact may cause skin irritation.
Ingestion: No hazard in normal industrial use.

SIGNS AND SYMPTOMS OF CHRONIC EXPOSURE

Prolonged or repeated contact with skin may cause irritation and dermatitis (inflammation).

CARCINOGENICITY

This material **does not** contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as a carcinogen.

SECTION 4 - FIRST AID

EYE CONTACT

Flush eyes with clean water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT

Remove contaminated clothing and shoes. Wash affected area with soap and water. Get medical attention if irritation develops or persists.

INHALATION

Move patient to fresh air. If breathing has stopped or is labored give assisted respiration (e.g. mouth-to-mouth). Supplemental oxygen may be indicated. Seek medical advice.

INGESTION

Give the victim one or two glasses of water or milk to drink. Get immediate medical attention. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE AND EXPLOSION DATA

FLASH POINT (closed cup) Not applicable
UPPER EXPLOSION LIMIT (UEL) Not applicable
LOWER EXPLOSION LIMIT (LEL) Not applicable
AUTOIGNITION TEMPERATURE Not applicable
FIRE HAZARD CLASSIFICATION (OSHA/NFPA) Non-Combustible

EXTINGUISHING MEDIA

Product does not burn. The product will only burn after the water it contains is driven off. For dry polymer use carbon dioxide, foam, dry chemical or water fog to extinguish fire. Aqueous solution **is not flammable**.

FIRE FIGHTING EQUIPMENT

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use.

FIRE FIGHTING INSTRUCTIONS

Containers of this material may build up pressure if exposed to heat (fire). Use water spray to cool fire-exposed containers.

FIRE AND EXPLOSION HAZARDS

This material **will not burn** unless it is evaporated to dryness. Closed containers may rupture when exposed to extreme heat.

HAZARDOUS COMBUSTION PRODUCTS

When dried polymer burns, water (H_2O), carbon dioxide (CO_2), carbon monoxide (CO) and smoke are produced.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

CONTAINMENT TECHNIQUES (Removal of ignition sources, diking etc)

Stop the leak, if possible. Ventilate the space involved.

CLEAN-UP PROCEDURES

Wear suitable protective equipment. If recovery is not feasible, admix with dry soil, sand or non-reactive absorbent and place in an appropriate chemical waste container. Prevent spilled material from entering sanitary sewers, storm sewers, drainage systems and from entering bodies of water or ditches that lead to waterways. Transfer to containers by suction, preparatory for later disposal. Place in metal containers for recovery or disposal. Flush area with water spray. Wash contaminated property (e.g., automobiles) quickly before the material dries. For large spills, recover spilled material with a vacuum truck.

OTHER EMERGENCY ADVICE

Spilled polymer emulsion is very slippery. Use care to avoid falls. A film will form on drying. Remove saturated clothing and wash contacted skin area with soap and water. Product imparts a milky white color to contaminated waters. Foaming may result. Sewage treatment plants may not be able to remove the white color imparted to the water.

SECTION 7 - HANDLING AND STORAGE

STORAGE

Keep from freezing. Store in a dry area. Keep containers closed when not in use to minimize contact with atmospheric air and prevent inoculation with microorganisms.

HANDLING

Use only in well-ventilated areas. Avoid contact with eyes. Avoid breathing vapors. Avoid prolonged or repeated contact with skin. Wash hands thoroughly after handling and before eating or drinking.

SECTION 8 - PERSONAL PROTECTION / EXPOSURE CONTROLS

EXPOSURE GUIDELINES

There are no Occupational Safety and Health (OSHA) Permissible Exposure Limits (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) or Short Term Exposure Limits (STEL) established for the component(s) of this product.

EYE PROTECTION

Chemical safety glasses.

HAND PROTECTION

Rubber Gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.

RESPIRATORY PROTECTION

Not required under normal use.

PROTECTIVE CLOTHING

No specific recommendation.

ENGINEERING CONTROLS

Good general ventilation should be sufficient to control airborne levels of irritating vapors.

SECTION 9 - TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	liquid
COLOR	Milky White (transparent once cured)
ODOR	Mild / Slight (no odor once cured)
pH	4.5-6.0
EVAPORATION RATE	< 1 (BuAc=1)
VAPOR DENSITY	> 1 (Air = 1)
BOILING POINT	>100.00°C (>212.00°F)
FREEZING POINT	<0°C (<32°F)
SOLUBILITY IN WATER	Completely (100%) (until cured)
SPECIFIC GRAVITY (Water = 1)	1.05-1.10

SECTION 10 - STABILITY AND REACTIVITY

STABILITY
Stable at ambient temperatures. Coagulation may occur following freezing, thawing or boiling.

INCOMPATIBILITY (Materials to Avoid)
No incompatibilities have been identified.

HAZARDOUS DECOMPOSITION PRODUCTS
Thermal decomposition may form: Acetic acid and Acrolein. Thermal decomposition may produce various hydrocarbons and irritating, acrid vapors.

HAZARDOUS POLYMERIZATION
Will not occur

CONDITIONS TO AVOID
Freezing temperatures (until cured).

SECTION 11 - TOXICOLOGICAL PROPERTIES

ACUTE EYE TOXICITY
No Information is available.

ACUTE ORAL TOXICITY
No Information is available.

ACUTE SKIN TOXICITY
No Information is available.

ACUTE INHALATION TOXICITY
No Information is available.

CHRONIC/CARCINOGENICY
This material **does not** contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY

Common Name	Species	Test	Result	Concentration
Green Algae	Raphidocelus Subcapitata	96-hr chronic LC50	>1,000	Undiluted
Fathead Minnow	Pimephales Promelas	96-hr acute LC50	>1,208	Undiluted
Rainbow Trout	Oncorhynchus Mykiss	96-hr acute LC50	>1,000	Undiluted

ENVIRONMENTAL FATE
No data is available.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD
This material **is not** a RCRA hazardous waste. Disposal of this material is not regulated under RCRA. Consult federal, state and local regulations to ensure that this material and its containers, if discarded, is disposed of in compliance with all regulatory requirements. NOTE: As supplied or diluted, product material (foam included), when splashed on automobiles or other personal property, is difficult to remove if allowed to dry.

RCRA HAZARD CLASS
This material **is not** a RCRA hazardous waste. When discarded in its purchased form, this material would not be regulated as a RCRA Hazardous waste under 40 CFR 261.

SECTION 14 - TRANSPORT INFORMATION

DOT NON-BULK SHIPPING NAME	Refer to Bill of Lading - Not DOT Regulated // Keep From Freezing // Not dangerous goods
DOT BULK SHIPPING NAME	Refer to Bill of Lading.
IMO SHIPPING DATA	Refer to Bill of Lading.
ICAO/IATA SHIPPING DATA	Refer to Bill of Lading - Not IATA Regulated // Keep From Freezing // Not dangerous goods
CFR	Not Regulated // Keep From Freezing // Not dangerous goods
IMDG	Not Regulated // Keep From Freezing // Not dangerous goods
CTC	Not Regulated // Keep From Freezing // Not dangerous goods

SECTION 15 - REGULATORY INFORMATION

TSCA SECTION 8(b) INVENTORY STATUS

All components are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

TSCA SECTION 12(b) EXPORT NOTIFICATION

This material **does not** contain any components that are subject to the U.S. Toxic Substances Control Act (TSCA) Section 12 (b) Export Notification requirements.

OSHA Hazard Communication Standard (29CFR1910.1200) hazard class(es)

This material **is not** classified as hazardous under the criteria of the U.S. Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200

EPA SARA Title III Section 304 CERCLA

Reportable quantities have not been established for any of this material's components.

EPA SARA Title III Section 311/312 HAZARD COMMUNICATION STANDARD (HCS)

This material **is not** a hazardous chemical.

EPA SARA Title III Section 313 TOXIC CHEMICAL LIST (TCL)

This product **does not** contain Section 313 Reportable Ingredients.

CANADIAN INVENTORY STATUS

All components of this material are listed on the Canadian Domestic Substances List (DSL)

CANADIAN WHMIS

This material **is not** classified as a controlled product under the Canadian Workplace Hazardous Material Information System.

ADDITIONAL CANADIAN REGULATORY INFORMATION

This product **does not** contain a substance present on the WHMIS Ingredient Disclosure List (IDL) which is at or above the specified concentration limit.

EUROPEAN INVENTORY STATUS (EINECS)

The polymer portion of this product is manufactured from reactants which are listed on EINECS and meets the EINECS definition of an exempt polymer.

AICS (Australia)

Included on inventory

ENCS (Japan)

Included on inventory

ECL (South Korea)

Included on inventory

SEPA (China)

Included on inventory

SECTION 16 – OTHER INFORMATION

HMIS and NFPA Classification

Health	: 1
Flammability	: 0
Reactivity	: 0
Special Hazard	: 0

Toll Free: 1-800-545-5420

Home Page
Product Information
Application Uses
Application Rates
Application Equipment
Application Methods
Shipping Containers
Photo Gallery
Material Safety Data Sheet
Frequently Asked Questions
Product Pricing
Test and Evaluation Data
Environmental Data
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McAfee SECURE TESTED 14-OCT

Soilworks Product Lines

Environmental Data

Soiltac® copolymer emulsion is proud to be a biodegradable and environmentally safe innovation. As the manufacturer of Soiltac®, Soilworks®, LLC is dedicated to protecting our environment through continued research and development. Soiltac® is specifically engineered to balance environmental friendliness with superior industry performance.

Toxicity Analysis					
Common Name	Species	Test	Result (mg/L)		
			Undiluted	1:4 Dilution	1:9 Dilution
GreenAlgae	RaphidocelusSubcapitata (Selenastrum capricornutum)	96-hrchronic LC50	>1,000	>5,000	>10,000
FatheadMinnow	PimephalesPromelas	96-hracute LC50	1,208	6,040	12,080
RainbowTrout	OncorhynchusMykiss	96-hracute LC50	>1,000	>5,000	>10,000

Microbiological and Biological Properties			
Constituent	Result		
	Undiluted	1:4 Dilution	1:9 Dilution
Fecal Coliform Bacteria	NoneDetected		
E. Coli Bacteria	NoneDetected		
Fecal Streptococcus Bacteria	NoneDetected		
Mold and Fungus	NoneDetected		

Chemical Properties			
Constituent	Result (mg/L)		
	Undiluted	1:4 Dilution	1:9 Dilution
Phenol,total	None Detected (detection limit:0.13 mg/L)		
Cyanide	None Detected (detection limit:0.50 mg/L)		
Fluoride	0.2	.04mg/L	0.02mg/L
Acetone	110mg/L	22mg/L	11mg/L
VinylAcetate	230mg/L	46mg/L	23mg/L
VolatileOrganics (other compounds)	None Detected		
OrganochlorinePesticides	None Detected		
PolychlorinatedBiphenyls (PCBs)	None Detected		
ChlorinatedHerbicides	NoneDetected		
CarbamatePesticides	NoneDetected		
OrganophosphoursPesticides	NoneDetected		

Nutrients			
Constituent	Result (mg/L)		
	Undiluted	1:4 Dilution	1:9 Dilution
Phosphorus,total	None Detected (detection limit:1.0 mg/L)		
KjeldahlNitrogen	None Detected (detection limit:10 mg/L)		
Ammonia-N	None Detected (detection limit:10 mg/L)		

Nitrate+Nitrite-N	None Detected (detection limit: 10 mg/L)

Metals (total)			
Constituent	**Result (mg/L)**		
	Undiluted	**1:4 Dilution**	**1:9 Dilution**
Aluminum	None Detected (detection limit:0.2 mg/L)		
Antimony	None Detected (detection limit:0.08 mg/L)		
Arsenic	None Detected (detection limit:0.06 mg/L)		
Barium	None Detected (detection limit:0.05 mg/L)		
Beryllium	None Detected (detection limit:0.005 mg/L)		
Boron	None Detected (detection limit:0.04 mg/L)		
Cadmium	None Detected (detection limit:0.005 mg/L)		
Chromium	None Detected (detection limit:0.02 mg/L)		
Cobalt	None Detected (detection limit:0.006 mg/L)		
Copper	None Detected (detection limit:0.01 mg/L)		
Iron	None Detected (detection limit:0.006 mg/L)		
Lead	None Detected (detection limit:0.08 mg/L)		
Magnesium	None Detected (detection limit:0.007 mg/L)		
Manganese	None Detected (detection limit:0.003 mg/L)		
Mercury	None Detected (detection limit:0.5 mg/L)		
Molybedenum	None Detected (detection limit:0.03 mg/L)		
Nickel	None Detected (detection limit:0.01 mg/L)		
Selenium	None Detected (detection limit:0.08 mg/L)		
Silver	None Detected (detection limit:0.04 mg/L)		
Thallium	None Detected (detection limit:0.08 mg/L)		
Tin	None Detected (detection limit:0.04 mg/L)		
Titanium	None Detected (detection limit:0.04 mg/L)		
Vanadium	None Detected (detection limit:0.01 mg/L)		
Zinc	None Detected (detection limit:0.01 mg/L)		

Leachable (TCLP) Metals	
Constituent	**Leachate Metal Concentration (mg/L)**
	Undiluted (Wet/Liquid)
Arsenic	None Detected (detection limit:0.02 mg/L)
Barium	None Detected (detection limit:0.001 mg/L)
Cadmium	None Detected (detection limit:0.002 mg/L)
Chromium	None Detected (detection limit:0.002 mg/L)
Lead	None Detected (detection limit:0.02 mg/L)
Mercury	None Detected (detection limit:0.001 mg/L)
Selenium	None Detected (detection limit:0.03 mg/L)
Silver	None Detected (detection limit:0.01 mg/L)

Leachable (TCLP) Organics	
Constituent	**Result (total)**
VolatileOrganics	NoneDetected
Semi-VolatileOrganics	NoneDetected

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Specializing in Soil Stabilization and Dust Control

SOILTAC®

Topical Traffic Area Application Overview

1.) Prepare the Site:

Dry Soil: The site should be completely dry and free from water.
Weather: The site must be free from rain for a minimum of 72 hours after the application.
Temperature must be at least 40°F (4°C).
Compaction: Compact the site to a minimum of 95%.
(per ASTM D 698 D 1557 modified Proctor Density).
Drainage: Contour and crown the site to provide for proper drainage.
Loose Aggregate: Remove any loose aggregate, soil or debris from the treatment area.

2.) Prepare Application Equipment

Spray Nozzles: Set spray nozzles to the desired width, height and output rate.
Test equipment (off-site) if necessary.
Coverage: The spray nozzles should provide an even coat over the treatment area with each pass.
Spray Rate: Set the spray rate high enough to allow even coverage with multiple coats and low enough to prevent material from draining away from the treatment area.
Pre-Wetting (Optional): Optimally, pre-wet the treatment area with water (only) to break the surface tension and increase penetration depth. Pre-wet at a rate of 100 SF/gallon (2.5m²/liter) of water.
Release Agent (Optional): Optionally, a form release agent (like Durasoil®) can be sprayed onto the equipment to prevent Soiltac® overspray from adhering onto the outside of the equipment

3.) Prepare the Soiltac® Dilution:

Water: Fill the application equipment with the recommended volume of water.
Reference the "application coverage rates" chart.

> **Example**: Roads (Light Traffic) = 70 ft²/gallons (1.7m²/liter) +7 parts water.
> **Equipment:** 4,000 gallon (15,142 liters) water truck
> **Calculation**: 7+1 = 8 parts dilution total.
> 4,000 gallons / 8 parts = 500 gallons (1,893 liters) per part
> Volume of Water: 500 gallons X 7 parts = 3,500 gallons (13,249 liters) of water
> Volume of Soiltac®: 500 gallons X 1 part = 500 gallons (1,893 liters) of Soiltac® concentrate
> Volume of Dilution: 500 gallons X 8 parts = 4,000 gallons (15,142 liters) of Soiltac® dilution

Soiltac®: Fill the application equipment with the recommended volume of Soiltac® concentrate.
Foaming: To prevent foaming, add the Soiltac® concentrate last, directly into the water.

4.) Apply the Soiltac® Dilution

Multiple Coats: Apply the Soiltac® dilution in coats over the treatment area.

> **Example**: (See Above) Roads (Light Traffic) typically require a minimum of 4 even coats.
> 500 gallons / 4 coats = 125 gallons (473 liters) (Soiltac® concentrate) per coat.
> 4,000 gallons / 4 coats = 1,000 gallons (3,785 liters) (Soiltac® dilution) per coat.
> 500 gallons (Soiltac® concentrate) X 70 ft²/gal. = 35,000 ft² (3,252 m²) treatment per water truck

Drying: Each successive coat of Soiltac® dilution should be applied in a timely manner to ensure that the surface always stays wet with the Soiltac® dilution. DO NOT allow the Soiltac® dilution to dry between the application coats. Failure to do so will result in an underperforming "skin" layer rather than a penetrating layer.

5.) Clean the Application Equipment

Rinse: Rinse off all application equipment thoroughly with water until clean. If Soiltac® is allowed to dry and cure use a hot pressure washer or steam cleaner and brush to remove residue.
Traffic: Prevent any human activity over the treated area until the site has completely cured.
Curing: Allow the treated area to dry and cure for approximately 24 hours (@70°F/21°C).

Appendix C – LLG Traffic Memo

Traffic Data Collection Methodology:

Traffic data is generally collected to determine the number, movements, and classifications of vehicles at a given location. Traffic professionals typically work with two distinct types of data: peak hour traffic counts and average daily traffic counts.

Peak hour counts are manually conducted at intersections during commuter peak hours (generally the highest one hour between 7 – 9 AM and 4 -6 PM), and identify the hourly volumes by each individual movement of the intersection (e.g., left, through, right, etc. for all approaches). The most common use of this data is for specific, engineering-level peak hour intersection analyses.

Average daily traffic counts (ADT's) are collected automatically using pneumatic road tubes, which collect directional or bi-directional count data on a roadway segment for at least 24-hours. When placed in a series, pneumatic road tubes can also provide vehicle classifications. Besides the method of collection and duration of the count, the major difference between peak hour counts and ADT counts is that the ADT counts are conducted at midblock locations, not intersections. The most common uses of ADT data is for daily street segment analysis and for making planning-level determinations of roadway network performance.

In the South El Monte portion of the study area, LLG conducted bi-directional ADT counts over a 24-hour period on September 9, 2009, when local schools were in session. Counts were conducted along the following study area roadways near the recycled water source site (*San Gabriel Valley Water Company*):

- Mable Avenue: east of Lee Avenue
- Rosemead Boulevard: between Mabel Avenue and SR 60

The street segments along Mable Avenue and Rosemead Boulevard in the City of South El Monte were counted because they are the principal roadways between the water source site and the regional freeway system, SR 60.

South El Monte Study Area Segment Analysis:

LLG has been tasked to determine what percent of traffic the proposed project would contribute to either of the study area roadways during the AM peak period. To determine this percentage, it is necessary to know the amount project traffic (the numerator) and the total peak hour segment traffic (the denominator).

LLG forecasted the recycled water truck traffic on these segments to be 3 peak hour trips, as shown in *Table 1–1* of the *Gregory Canyon Landfill Haul Route Focused Traffic Impact Study* (October 9, 2009).

The 24-hour data collected for the Mable Avenue and Rosemead Boulevard segments was reviewed, and the AM peak period volumes were examined for each peak hour (7-8 AM and 8-9 AM). ***Table A*** shows a summary of the ADT, the project contribution, and peak hour traffic volumes.

TABLE A
PROJECT CONTRIBUTION TO EXISTING TRAFFIC

Segment	ADT [b]	AM Peak Period [a]				
		Project Traffic Contribution	Peak Hour Volume [c]		Project % Contribution [d]	
			7-8 AM	8-9 AM	7-8 AM	8-9 AM
Mabel Avenue						
East of Lee Avenue	2,100	3	179	165	1.68%	1.82%
Rosemead Boulevard						
Mabel Avenue to SR 60	46,240	3	2,833	3,474	0.11%	0.08%

Footnotes:

a. The AM peak period is 7 to 9 AM.
b. ADT = Average Daily Traffic (24 hours)
c. Bi-directional segment volume for each hour in the peak period.
d. The project contribution is 3 peak hour trips. The "%-contribution" is measured by dividing 3 project trips into the peak hour volume.

Table A also shows project's percent-contribution to either study area street segment during both peak hours in the AM peak period. This table shows that the project contributes ***less than 2%*** to either location. As such, project contribution to any specific locations along these street segments in the project vicinity would be comparable – less than 2%.

Street Segment Cumulative Growth Projections:

To account for potential near-term growth in the South El Monte project area, LLG applied a 2% per year growth factor for five years to existing counts. This is consistent with the cumulative growth analysis LLG prepared for the *Gregory Canyon Landfill Haul Route Focused Traffic Impact Study* (October 9, 2009), shown in *Section 6.2*.

Table B shows daily and peak hour traffic volumes with the applied growth factor. Again, the percent of project contribution is calculated using 3 peak hour trips.

TABLE B
PROJECT CONTRIBUTION TO EXISTING + CUMULATIVE GROWTH TRAFFIC

Segment	ADT [b]	AM Peak Period [a]				
		Project Traffic Contribution	Peak Hour Volume [c]		Project % Contribution [d]	
			7-8 AM	8-9 AM	7-8 AM	8-9 AM
Mabel Avenue						
East of Lee Avenue	2,310	3	197	182	1.52%	1.65%
Rosemead Boulevard						
Mabel Avenue to SR 60	50,864	3	3,116	3,821	0.10%	0.08%

Footnotes:

a. The AM peak period is 7 to 9 AM.
b. ADT = Average Daily Traffic (24 hours) with a 2% per year increase for 5 years.
c. Bi-directional segment volume for each hour in the peak period, with a 2% per year increase for 5 years.
d. The project contribution is 3 peak hour trips. The "%-contribution" is measured by dividing 3 project trips into the peak hour volume.

Table B also shows the project's percent-contribution to either study area street segment during both peak hours in the AM peak period. This table shows that the project continues to contribute ***less than 2%*** to either location when considering potential cumulative growth. As such, project contribution to any specific locations along these street segments in the project vicinity would be comparable – less than 2%.

Appendix D – Noise Analysis Worksheets

Project: Gregory Canyon Addendum

Existing										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Mabel Ave. e/o Lee Ave.	25			2098	60.5	57.5	55.7	60.2	57.3	55.5
0	40			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
Future No Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Mabel Ave. e/o Lee Ave.	25			2285	60.7	57.8	56.0	60.5	57.5	55.8
0	40			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
Future with Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Mabel Ave. e/o Lee Ave.	25			2310	61.8	58.9	57.1	62.3	59.3	57.6
0	40			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Mabel Ave. e/o Lee Ave.	1.8	2.0	1.8	2.1
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-

Project: Gregory Canyon Addendum

Existing										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Rosemead Blvd. between Mabel Ave. and SR 60	40			46243	75.0	72.8	71.3	76.3	74.0	72.5
0	40			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
Fugure No Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Rosemead Blvd. between Mabel Ave. and SR 60	40			50839	75.4	73.1	71.6	76.6	74.3	72.9
0	40			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
Future with Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Rosemead Blvd. between Mabel Ave. and SR 60	40			50864	75.5	73.2	71.7	76.7	74.4	73.0
0	40			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-
0	25			0	-	-	-	-	-	-

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Rosemead Blvd. between Mabel Ave. and SR 60	0.1	0.4	0.1	0.4
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-

Project: Gregory Canyon Addendum

Existing											
	Speed	Traffic Volumes			Leq			CNEL			
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	100 Feet	ROW	25 Feet	100 Feet	
SR60 between I-605 & SR 57 (S. Hacienda Blvd. to S. Azusa Ave.	65			174300	85.2	82.7	79.0	86.4	83.9	80.3	
SR 60 between SR 57 & I-15 (S. Vineyard Ave. to S. Milliken Ave.)	65			209700	85.5	83.2	79.7	86.7	84.4	80.9	
I-15 between SR 60 & SR 91 (5th St. to 3rd St.)	60			150000	83.6	81.1	77.5	84.8	82.3	78.7	
I-15 between SR 91 & SR 215 (Riverside Dr. to Main St.)	60			109000	82.2	79.7	76.1	83.5	80.9	77.3	
I-15 between SR 79 to Pala Rd. (SR 76)	60			128000	83.6	80.8	76.9	84.8	82.0	78.1	
Project Only											
	Speed	Traffic Volumes			Leq			CNEL			
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	100 Feet	ROW	25 Feet	100 Feet	
SR60 between I-605 & SR 57 (S. Hacienda Blvd. to S. Azusa Ave.	65			191730	85.6	83.1	79.5	86.8	84.3	80.7	
SR 60 between SR 57 & I-15 (S. Vineyard Ave. to S. Milliken Ave.)	65			230670	85.9	83.6	80.1	87.2	84.8	81.3	
I-15 between SR 60 & SR 91 (5th St. to 3rd St.)	60			165000	84.0	81.5	77.9	85.3	82.7	79.1	
I-15 between SR 91 & SR 215 (Riverside Dr. to Main St.)	60			119900	82.7	80.1	76.5	83.9	81.4	77.7	
I-15 between SR 79 to Pala Rd. (SR 76)	60			140800	84.0	81.2	77.3	85.2	82.4	78.5	
Existing With Project											
	Speed	Traffic Volumes			Leq			CNEL			
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	100 Feet	ROW	25 Feet	100 Feet	
SR60 between I-605 & SR 57 (S. Hacienda Blvd. to S. Azusa Ave.	65			191755	85.6	83.1	79.5	86.8	84.3	80.7	
SR 60 between SR 57 & I-15 (S. Vineyard Ave. to S. Milliken Ave.)	65			230695	85.9	83.6	80.1	87.2	84.8	81.3	
I-15 between SR 60 & SR 91 (5th St. to 3rd St.)	60			165025	84.0	81.5	77.9	85.3	82.7	79.1	
I-15 between SR 91 & SR 215 (Riverside Dr. to Main St.)	60			119925	82.7	80.1	76.5	83.9	81.4	77.7	
I-15 between SR 79 to Pala Rd. (SR 76)	60			140825	84.0	81.2	77.3	85.2	82.4	78.5	

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
SR60 between I-605 & SR 57 (S. Hacienda Blvd. to S. Azusa Ave.	0.0	0.4	0.4	0.4
SR 60 between SR 57 & I-15 (S. Vineyard Ave. to S. Milliken Ave.)	0.0	0.4	0.5	0.5
I-15 between SR 60 & SR 91 (5th St. to 3rd St.)	0.0	0.4	0.5	0.5
I-15 between SR 91 & SR 215 (Riverside Dr. to Main St.)	0.0	0.5	0.4	0.4
I-15 between SR 79 to Pala Rd. (SR 76)	0.0	0.4	0.4	0.4

Appendix D-2
Visibility Analysis

Year 19 Visibility Analysis

Visual Effects Screening Analysis for
Source: GCLF
Class I Area: Agua Tibia Wilderness

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	468.00	LB /DAY
NOx (as NO2)	835.00	LB /DAY
Primary NO2	.00	LB /DAY
Soot	.00	LB /DAY
Primary SO4	.00	LB /DAY

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	8
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	50.00 km
Source-Observer Distance:	9.24 km
Min. Source-Class I Distance:	9.24 km
Max. Source-Class I Distance:	22.00 km
Plume-Source-Observer Angle:	11.25 degrees

Stability: 4
Wind Speed: 2.18 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	155.	16.4	14.	2.22	.445	.05	-.001
SKY	140.	155.	16.4	14.	2.00	.160	.05	-.003
TERRAIN	10.	161.	22.0	8.	2.00	.286	.05	.003
TERRAIN	140.	161.	22.0	8.	2.00	.108	.05	.002

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	1.	1.0	167.	2.00	2.517*	.05	-.004

SKY	140.	1.	1.0	167.	2.00	.897	.05	-.017
TERRAIN	10.	1.	1.0	167.	2.00	1.889	.05	.017
TERRAIN	140.	1.	1.0	167.	2.00	.692	.05	.011

Gregory Canyon - Viscreen Results Output - Year 19

Source:	"Landfill"					
Class I Area:	"Agua Tibia Wilderness Area"					
emission units:	4	4				
emission rates:	468.000	835.000		0.000	0.000	0.000
distances:	9.240	9.240		22.000	50.000	
particle	0	1.500	3			
characteristics:	0	2.500	8			
	0	2.500	8			
	0	2.000	1			
	0	1.500	4			
ozone conc.:	0	0.040	2.180	4		
plume offset angle:	0	11.250				

shading indicates excaedances

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Line of Sight	0 = out 1 = in	ϕ	α	χ	r_p	r_o	ψ	criteria	criteria	sky forward	criteria	sky backward	criteria	terrain forward	criteria	terrain backward
1	0	5	163.8	2.9	6.4	7.7	2.44	0.050	2.00	1.20	2.00	0.44	2.00	0.79	2.00	0.27
2	0	10	158.8	4.4	5.0	6.6	4.14	0.050	2.00	0.84	2.00	0.31	2.00	0.52	2.00	0.16
3	0	15	153.8	5.4	4.1	5.8	5.70	0.050	2.19	0.68	2.00	0.25	2.00	0.41	2.00	0.12
4	0	20	148.8	6.1	3.5	5.2	7.18	0.050	2.68	0.57	2.00	0.21	2.00	0.38	2.00	0.09
5	0	25	143.8	6.6	3.0	4.8	8.56	0.052	3.15	0.50	2.00	0.19	2.15	0.32	2.00	0.08
6	0	30	138.8	7.0	2.7	4.5	9.87	0.059	3.58	0.45	2.00	0.17	2.40	0.29	2.00	0.08
7	0	35	133.8	7.3	2.5	4.2	11.08	0.066	4.01	0.41	2.00	0.15	2.65	0.26	2.00	0.06
8	0	40	128.8	7.6	2.3	4.0	12.19	0.073	4.40	0.38	2.00	0.14	2.66	0.26	2.00	0.05
9	0	45	123.8	7.9	2.2	3.8	13.21	0.079	4.76	0.38	2.00	0.13	3.06	0.25	2.00	0.05
10	0	50	118.8	8.1	2.1	3.7	14.11	0.085	5.07	0.34	2.00	0.13	3.24	0.24	2.00	0.04
11	0	55	113.6	8.3	2.0	3.6	14.90	0.089	5.35	0.32	2.00	0.12	3.39	0.23	2.00	0.04
12	0	60	108.8	8.5	1.9	3.8	15.58	0.093	5.59	0.31	2.00	0.12	3.52	0.22	2.00	0.04
13	0	65	103.8	8.6	1.9	3.5	16.14	0.097	5.78	0.30	2.00	0.11	3.64	0.22	2.00	0.04
14	0	70	98.8	8.8	1.8	3.5	16.58	0.099	5.93	0.29	2.03	0.11	3.73	0.21	2.00	0.03
15	0	75	93.8	8.9	1.8	3.8	16.89	0.101	6.04	0.29	2.07	0.11	3.81	0.20	2.00	0.03
16	0	80	88.8	9.1	1.8	3.8	17.08	0.102	6.11	0.28	2.09	0.11	3.87	0.20	2.00	0.03
17	1	85	83.8	9.3	1.8	3.7	17.15	0.103	6.13	0.28	2.10	0.11	3.91	0.19	2.00	0.03
18	1	90	78.8	9.4	1.8	3.8	17.09	0.103	6.11	0.28	2.09	0.11	3.93	0.19	2.00	0.03
19	1	95	73.8	9.6	1.9	4.0	16.91	0.101	6.05	0.29	2.07	0.11	3.94	0.19	2.00	0.03
20	1	100	68.8	9.8	1.9	4.2	16.61	0.100	5.94	0.29	2.03	0.11	3.92	0.18	2.00	0.03
21	1	105	63.8	10.0	2.0	4.5	16.18	0.097	5.80	0.29	2.00	0.11	3.89	0.18	2.00	0.03
22	1	110	58.6	10.2	2.1	4.8	15.64	0.094	5.60	0.30	2.00	0.11	3.84	0.17	2.00	0.03
23	1	115	53.8	10.4	2.2	5.2	14.97	0.090	5.37	0.31	2.00	0.12	3.77	0.17	2.00	0.03
24	1	120	48.8	10.6	2.4	5.8	14.19	0.085	5.10	0.32	2.00	0.12	3.67	0.16	2.00	0.03
25	1	125	43.8	10.9	2.6	6.6	13.29	0.080	4.79	0.34	2.00	0.13	3.56	0.15	2.00	0.03
26	1	130	38.8	11.3	2.9	7.7	12.29	0.074	4.43	0.36	2.00	0.13	3.42	0.14	2.00	0.03
27	1	135	33.8	11.8	3.2	9.2	11.16	0.067	4.04	0.38	2.00	0.14	3.26	0.12	2.00	0.03
28	1	140	28.8	12.3	3.7	11.8	9.98	0.060	3.82	0.40	2.00	0.15	3.08	0.10	2.00	0.02
29	1	145	23.8	13.2	4.5	16.3	6.68	0.053	3.18	0.42	2.00	0.16	2.88	0.08	2.00	0.02
30	1	150	18.8	14.4	5.8	27.1	7.29	0.050	2.72	0.44	2.00	0.16	2.81	0.04	2.00	0.01
31	1	155	13.8	16.4	7.6	81.1	5.81	0.050	2.22	0.45	2.00	0.16	2.22	0.00	2.00	0.00
32	0	1.4	167.4	1.0	8.3	8.7	0.92	0.050	2.00	2.52	2.00	0.90	2.00	1.89	2.00	0.69
33	1	84.4	84.4	9.2	1.8	3.7	17.15	0.103	6.13	0.28	2.10	0.11	3.91	0.20	2.00	0.03
34	1	160.8	7.9	22.0	13.1	13.1	3.96	0.050	2.00	0.35	2.00	0.12	2.00	0.29	2.00	0.11

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				Green Contrast				Blue Contrast				Red Contrast			
Line of Sight	0 = out 1 = in	ϕ	criteria	sky forward	terrain forward	sky backward	terrain backward	sky forward	terrain forward	sky backward	terrain backward	sky forward	terrain forward	sky backward	terrain backward
1	0	5	0.050	-0.002	0.007	-0.007	0.004	-0.014	0.010	-0.018	0.009	0.002	0.007	-0.004	0.003
2	0	10	0.050	-0.001	0.004	-0.005	0.002	-0.010	0.006	-0.013	0.005	0.001	0.004	-0.002	0.002
3	0	15	0.050	-0.001	0.003	-0.004	0.002	-0.008	0.004	-0.010	0.003	0.001	0.003	-0.002	0.001
4	0	20	0.050	-0.001	0.003	-0.003	0.001	-0.007	0.004	-0.009	0.003	0.001	0.003	-0.002	0.001
5	0	25	0.052	-0.001	0.002	-0.003	0.001	-0.008	0.003	-0.008	0.002	0.001	0.002	-0.001	0.001
6	0	30	0.059	-0.001	0.002	-0.002	0.001	-0.005	0.003	-0.007	0.002	0.001	0.002	-0.001	0.001
7	0	35	0.066	-0.001	0.002	-0.002	0.001	-0.005	0.002	-0.006	0.001	0.001	0.002	-0.001	0.001
8	0	40	0.073	0.000	0.002	-0.002	0.001	-0.005	0.002	-0.008	0.001	0.001	0.002	-0.001	0.001
9	0	45	0.079	0.000	0.002	-0.002	0.001	-0.004	0.002	-0.005	0.001	0.001	0.002	-0.001	0.001
10	0	50	0.085	0.000	0.002	-0.002	0.001	-0.004	0.002	-0.005	0.001	0.000	0.002	-0.001	0.001
11	0	55	0.089	0.000	0.001	-0.002	0.000	-0.004	0.002	-0.005	0.001	0.000	0.001	-0.001	0.000
12	0	60	0.093	0.000	0.001	-0.002	0.000	-0.004	0.002	-0.005	0.001	0.000	0.001	-0.001	0.000
13	0	65	0.097	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.005	0.001	0.000	0.001	-0.001	0.000
14	0	70	0.099	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
15	0	75	0.101	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
16	0	80	0.102	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
17	1	85	0.103	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
18	1	90	0.103	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
19	1	95	0.101	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
20	1	100	0.100	0.000	0.001	-0.002	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
21	1	105	0.097	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
22	1	110	0.094	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.005	0.001	0.000	0.001	-0.001	0.000
23	1	115	0.090	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.005	0.001	0.000	0.001	-0.001	0.000
24	1	120	0.085	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.005	0.001	0.000	0.001	-0.001	0.000
25	1	125	0.080	0.000	0.001	-0.002	0.000	-0.004	0.001	-0.005	0.001	0.000	0.001	-0.001	0.000
26	1	130	0.074	0.000	0.001	-0.002	0.001	-0.004	0.001	-0.005	0.001	0.001	0.001	-0.001	0.000
27	1	135	0.067	0.000	0.001	-0.002	0.001	-0.005	0.001	-0.006	0.001	0.001	0.001	-0.001	0.001
28	1	140	0.060	-0.001	0.001	-0.002	0.001	-0.005	0.001	-0.006	0.001	0.001	0.001	-0.001	0.001
29	1	145	0.053	-0.001	0.001	-0.002	0.000	-0.005	0.001	-0.006	0.001	0.001	0.001	-0.001	0.000
30	1	150	0.050	-0.001	0.001	-0.003	0.000	-0.005	0.000	-0.007	0.001	0.001	0.001	-0.001	0.000
31	1	155	0.050	-0.001	0.000	-0.003	0.000	-0.005	0.000	-0.007	0.000	0.001	0.000	-0.001	0.000
32	0	1.4	0.050	-0.004	0.017	-0.017	0.011	-0.030	0.027	-0.038	0.016	0.005	0.016	-0.009	0.008
33	1	84.4	0.103	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
34	1	160.8	0.050	-0.001	0.003	-0.003	0.002	-0.004	0.005	-0.005	0.003	0.001	0.003	-0.002	0.002

Year 30 Visibility Analysis

Gregory Canyon - Viscreen Results Output - Year 30

Source:	"Landfill"					
Class I Area:	"Agua Tibia Wilderness Area"					
emission units:	4	4				
emission rates:	181.000	435.000		0.000	0.000	0.000
distances:	9.240	9.240		22.000	50.000	
particle	0	1.500	3			
characteristics:	0	2.500	8			
	0	2.500	8			
	0	2.000	1			
	0	1.500	4			
ozone conc.:	0	0.040	2.180	4		
plume offset angle:	0	11.250				

shading indicates exceedances

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Line of Sight	0 = out 1 = in	ϕ	α	χ	r_p	r_o	ψ	criteria	criteria	sky forward	criteria	sky backward	criteria	terrain forward	criteria	terrain backward
1	0	5	183.8	2.9	6.4	7.7	2.44	0.050	2.00	0.61	2.00	0.22	2.00	0.37	2.00	0.14
2	0	10	158.8	4.4	5.0	6.6	4.14	0.050	2.00	0.43	2.00	0.16	2.00	0.23	2.00	0.08
3	0	15	153.6	5.4	4.1	5.8	5.70	0.050	2.19	0.34	2.00	0.13	2.00	0.18	2.00	0.06
4	0	20	148.8	8.1	3.5	5.2	7.18	0.050	2.66	0.29	2.00	0.11	2.00	0.15	2.00	0.05
5	0	25	143.8	6.6	3.0	4.6	8.58	0.052	3.15	0.28	2.00	0.10	2.15	0.13	2.00	0.04
6	0	30	138.8	7.0	2.7	4.5	9.87	0.059	3.58	0.23	2.00	0.09	2.40	0.12	2.00	0.03
7	0	35	133.8	7.3	2.5	4.2	11.08	0.066	4.01	0.21	2.00	0.08	2.65	0.11	2.00	0.03
8	0	40	128.8	7.8	2.3	4.0	12.19	0.073	4.40	0.19	2.00	0.07	2.86	0.10	2.00	0.03
9	0	45	123.8	7.9	2.2	3.8	13.21	0.079	4.76	0.18	2.00	0.07	3.08	0.10	2.00	0.02
10	0	50	118.8	8.1	2.1	3.7	14.11	0.085	5.07	0.17	2.00	0.08	3.24	0.09	2.00	0.02
11	0	55	113.8	8.3	2.0	3.8	14.90	0.089	5.35	0.16	2.00	0.06	3.39	0.09	2.00	0.02
12	0	60	108.6	8.5	1.9	3.6	15.58	0.093	5.59	0.16	2.00	0.06	3.52	0.09	2.00	0.02
13	0	65	103.8	8.6	1.9	3.5	16.14	0.097	5.78	0.15	2.00	0.06	3.64	0.08	2.00	0.02
14	0	70	98.8	8.8	1.8	3.5	16.58	0.099	5.93	0.15	2.03	0.06	3.73	0.08	2.00	0.02
15	0	75	93.8	8.9	1.8	3.8	16.69	0.101	6.04	0.15	2.07	0.06	3.81	0.08	2.00	0.02
16	0	80	88.8	9.1	1.8	3.6	17.08	0.102	6.11	0.15	2.09	0.05	3.87	0.08	2.00	0.02
17	1	85	83.8	9.3	1.8	3.7	17.15	0.103	6.13	0.14	2.10	0.05	3.91	0.08	2.00	0.02
18	1	90	78.8	9.4	1.8	3.8	17.09	0.103	6.11	0.14	2.09	0.05	3.93	0.07	2.00	0.02
19	1	95	73.6	9.6	1.9	4.0	16.91	0.101	6.05	0.15	2.07	0.05	3.94	0.07	2.00	0.02
20	1	100	68.8	9.8	1.9	4.2	16.61	0.100	5.94	0.15	2.03	0.08	3.92	0.07	2.00	0.02
21	1	105	63.8	10.0	2.0	4.5	16.18	0.097	5.80	0.15	2.00	0.06	3.89	0.07	2.00	0.02
22	1	110	58.8	10.2	2.1	4.8	15.64	0.094	5.60	0.15	2.00	0.06	3.84	0.07	2.00	0.02
23	1	115	53.8	10.4	2.2	5.2	14.97	0.090	5.37	0.16	2.00	0.08	3.77	0.07	2.00	0.02
24	1	120	48.8	10.6	2.4	5.8	14.19	0.085	5.10	0.18	2.00	0.06	3.67	0.06	2.00	0.02
25	1	125	43.8	10.9	2.6	6.6	13.29	0.080	4.79	0.17	2.00	0.06	3.56	0.08	2.00	0.01
26	1	130	38.8	11.3	2.9	7.7	12.29	0.074	4.43	0.18	2.00	0.07	3.42	0.08	2.00	0.01
27	1	135	33.8	11.6	3.2	9.2	11.18	0.067	4.04	0.19	2.00	0.07	3.26	0.05	2.00	0.01
28	1	140	28.8	12.3	3.7	11.6	9.98	0.060	3.62	0.20	2.00	0.06	3.06	0.04	2.00	0.01
29	1	145	23.8	13.2	4.5	16.3	8.68	0.053	3.16	0.22	2.00	0.08	2.86	0.03	2.00	0.01
30	1	150	18.8	14.4	5.6	27.1	7.29	0.050	2.72	0.23	2.00	0.08	2.61	0.01	2.00	0.00
31	1	155	13.8	16.4	7.6	61.1	5.61	0.050	2.22	0.23	2.00	0.08	2.22	0.00	2.00	0.00
32	0	1.4	187.4	1.0	6.3	8.7	0.92	0.050	2.00	1.30	2.00	0.47	2.00	0.92	2.00	0.36
33	1	84.4	64.4	9.2	1.8	3.7	17.15	0.103	6.13	0.14	2.10	0.05	3.91	0.08	2.00	0.02
34	1	160.8	7.9	22.0	13.1	13.1	3.96	0.050	2.00	0.16	2.00	0.06	2.00	0.14	2.00	0.06

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				Green Contrast				Blue Contrast				Red Contrast			
Line of Sight	0 = out 1 = in	ϕ	criteria	sky forward	terrain forward	sky backward	terrain backward	sky forward	terrain forward	sky backward	terrain backward	sky forward	terrain forward	sky backward	terrain backward
1	0	5	0.050	-0.001	0.003	-0.003	0.002	-0.008	0.005	-0.009	0.004	0.001	0.003	-0.002	0.001
2	0	10	0.050	-0.001	0.002	-0.002	0.001	-0.005	0.003	-0.006	0.002	0.001	0.002	-0.001	0.001
3	0	15	0.050	-0.001	0.001	-0.002	0.001	-0.004	0.002	-0.005	0.002	0.000	0.001	-0.001	0.001
4	0	20	0.050	-0.001	0.001	-0.001	0.000	-0.004	0.002	-0.004	0.001	0.000	0.001	-0.001	0.000
5	0	25	0.052	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.004	0.001	0.000	0.001	-0.001	0.000
6	0	30	0.059	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.003	0.001	0.000	0.001	0.000	0.000
7	0	35	0.066	0.000	0.001	-0.001	0.000	-0.003	0.001	-0.003	0.001	0.000	0.001	0.000	0.000
8	0	40	0.073	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.003	0.001	0.000	0.001	0.000	0.000
9	0	45	0.079	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.003	0.001	0.000	0.001	0.000	0.000
10	0	50	0.085	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.003	0.000	0.000	0.001	0.000	0.000
11	0	55	0.089	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
12	0	60	0.093	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
13	0	85	0.097	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
14	0	70	0.099	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
15	0	75	0.101	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
16	0	80	0.102	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.000	0.000	0.000
17	1	85	0.103	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.000	0.000	0.000
18	1	90	0.103	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.000	0.000	0.000
19	1	95	0.101	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.000	0.000	0.000
20	1	100	0.100	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.000	0.000	0.000
21	1	105	0.097	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
22	1	110	0.094	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
23	1	115	0.090	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
24	1	120	0.065	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.001	0.000	0.000
25	1	125	0.060	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.003	0.000	0.000	0.001	0.000	0.000
26	1	130	0.074	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.003	0.000	0.000	0.001	0.000	0.000
27	1	135	0.067	0.000	0.001	-0.001	0.000	-0.002	0.001	-0.003	0.000	0.000	0.001	0.000	0.000
28	1	140	0.060	0.000	0.000	-0.001	0.000	-0.003	0.001	-0.003	0.000	0.000	0.001	0.000	0.000
29	1	145	0.053	0.000	0.000	-0.001	0.000	-0.003	0.000	-0.003	0.000	0.000	0.000	0.000	0.000
30	1	150	0.050	0.000	0.000	-0.001	0.000	-0.003	0.000	-0.003	0.000	0.000	0.000	-0.001	0.000
31	1	155	0.050	0.000	0.000	-0.001	0.000	-0.003	0.000	-0.003	0.000	0.000	0.000	-0.001	0.000
32	0	1.4	0.050	-0.003	0.007	-0.008	0.005	-0.020	0.013	-0.020	0.012	0.002	0.006	-0.004	0.000
33	1	84.4	0.103	0.000	0.000	-0.001	0.000	-0.002	0.001	-0.002	0.000	0.000	0.000	0.000	0.003
34	1	160.8	0.050	0.000	0.001	-0.001	0.001	-0.003	0.002	-0.003	0.002	0.000	0.001	-0.001	0.001

Visual Effects Screening Analysis for
Source: GCLF
Class I Area: Agua Tibia Wilderness

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	181.00	LB /DAY
NOx (as NO2)	435.00	LB /DAY
Primary NO2	.00	LB /DAY
Soot	.00	LB /DAY
Primary SO4	.00	LB /DAY

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	8
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	50.00 km
Source-Observer Distance:	9.24 km
Min. Source-Class I Distance:	9.24 km
Max. Source-Class I Distance:	22.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	4
Wind Speed:	2.18 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

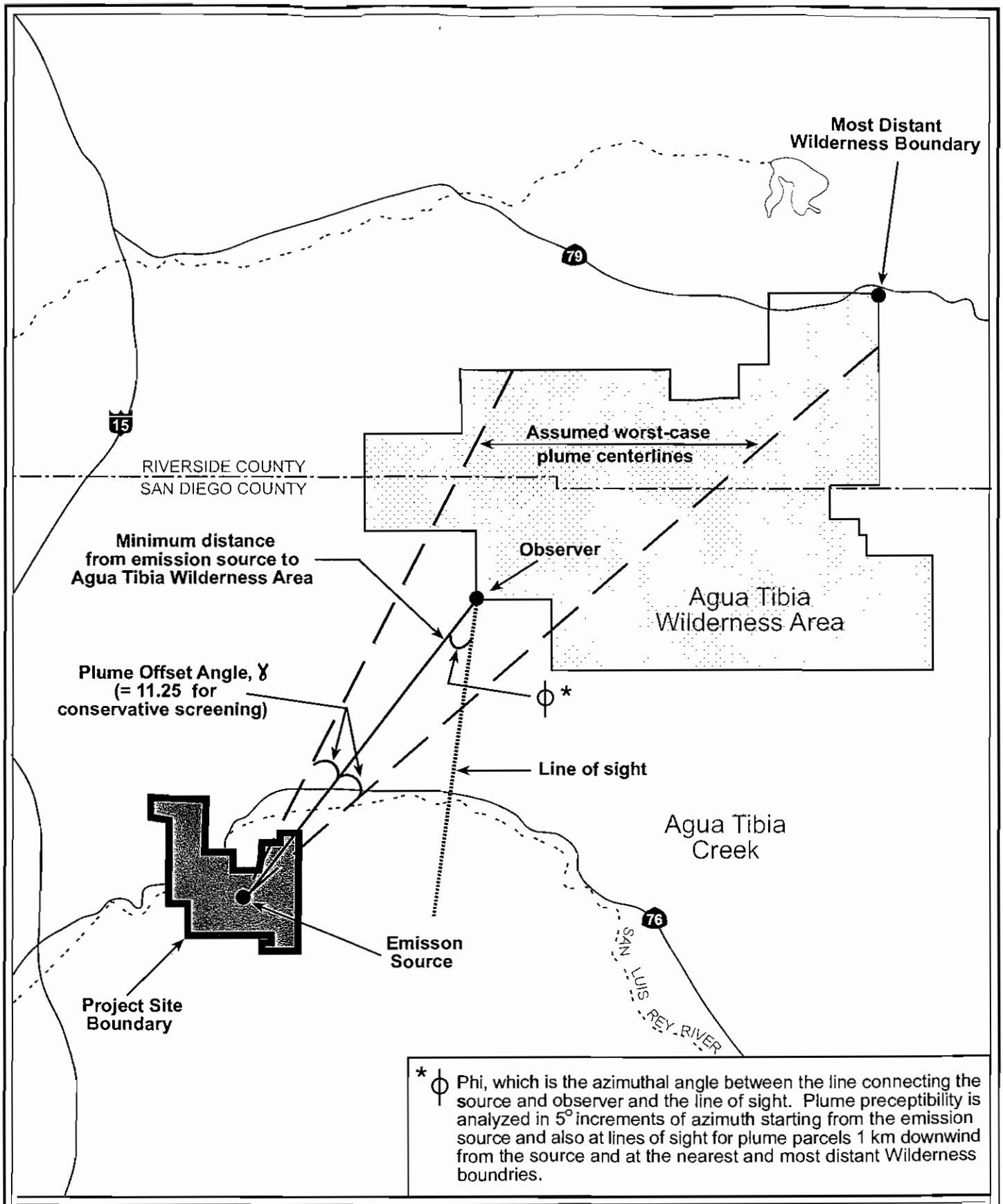
Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	155.	16.4	14.	2.22	.226	.05	-.000
SKY	140.	155.	16.4	14.	2.00	.082	.05	-.001
TERRAIN	10.	161.	22.0	8.	2.00	.141	.05	.001
TERRAIN	140.	161.	22.0	8.	2.00	.056	.05	.001

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	1.	1.0	167.	2.00	1.298	.05	-.003

SKY	140.	1.	1.0	167.	2.00	.471	.05	-.008
TERRAIN	10.	1.	1.0	167.	2.00	.919	.05	.007
TERRAIN	140.	1.	1.0	167.	2.00	.360	.05	.005

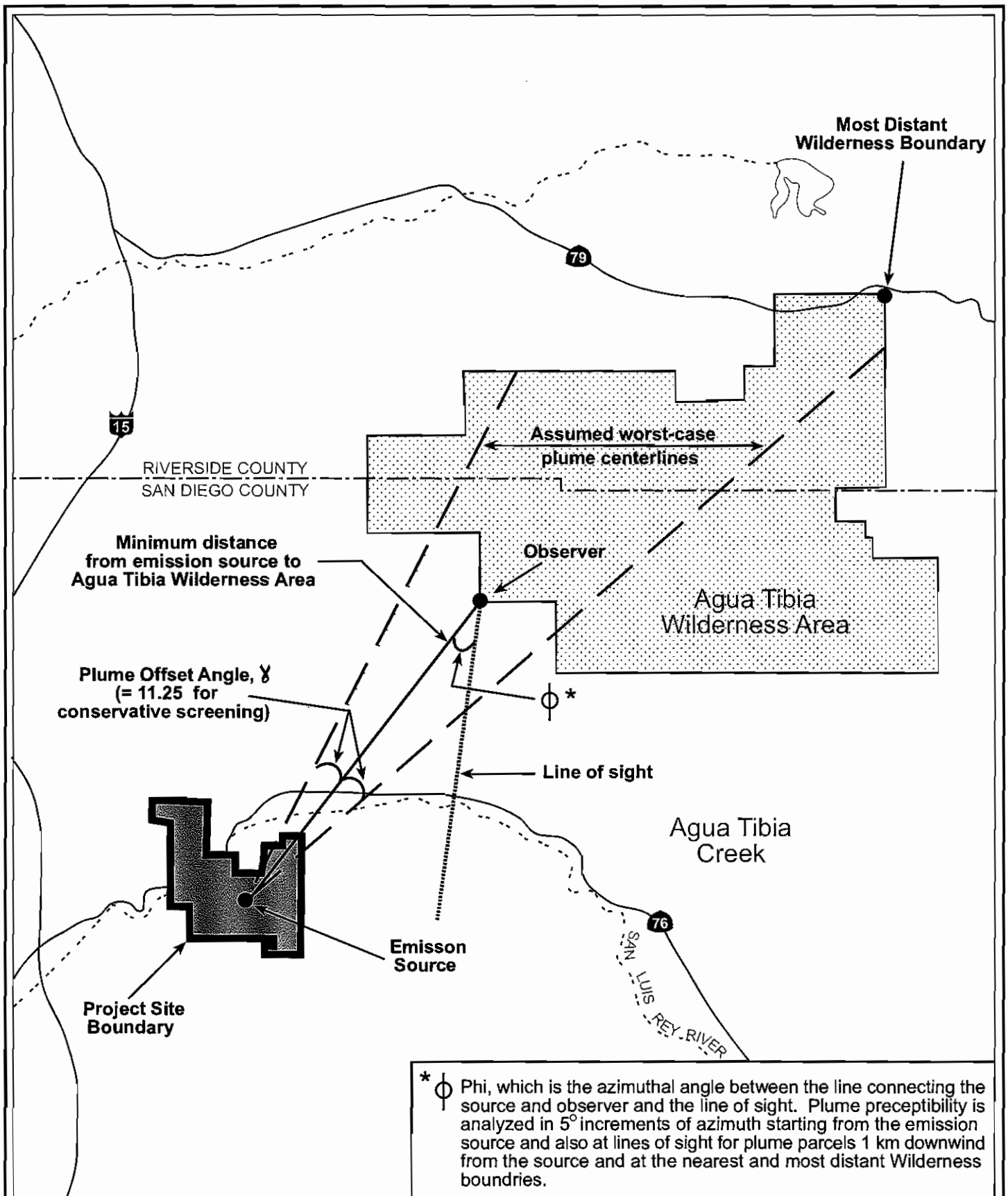


PCR

NOT TO SCALE

Exhibit 1
Geometry of Plume and Observer Lines of Sight Used for Plume Visual Impact Screening

Source: SANDAG GIS Data, 1997 and David Evans and Associates, Inc.



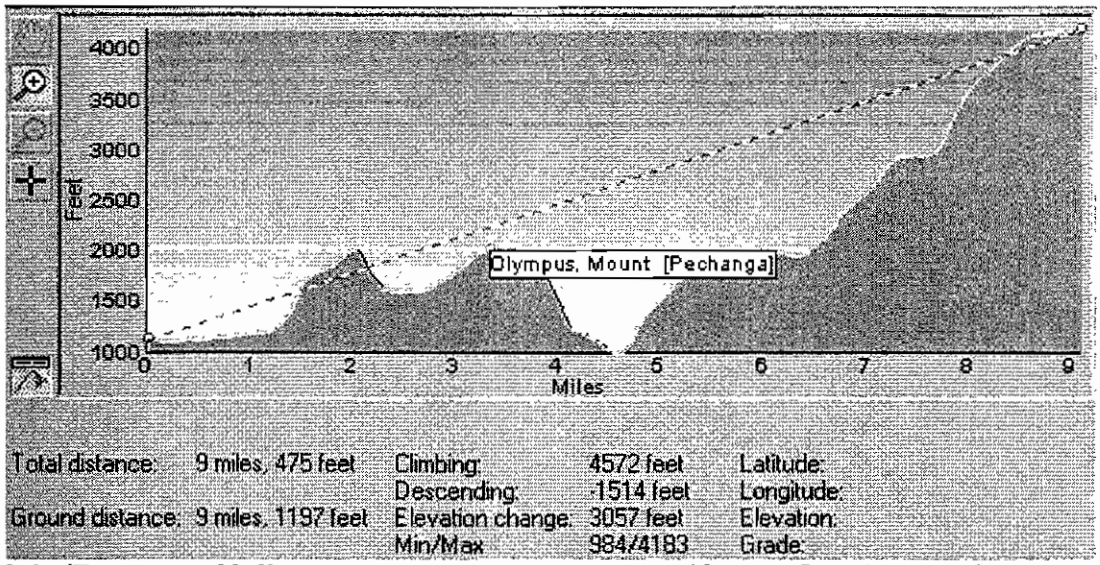
PCR

NOT TO SCALE

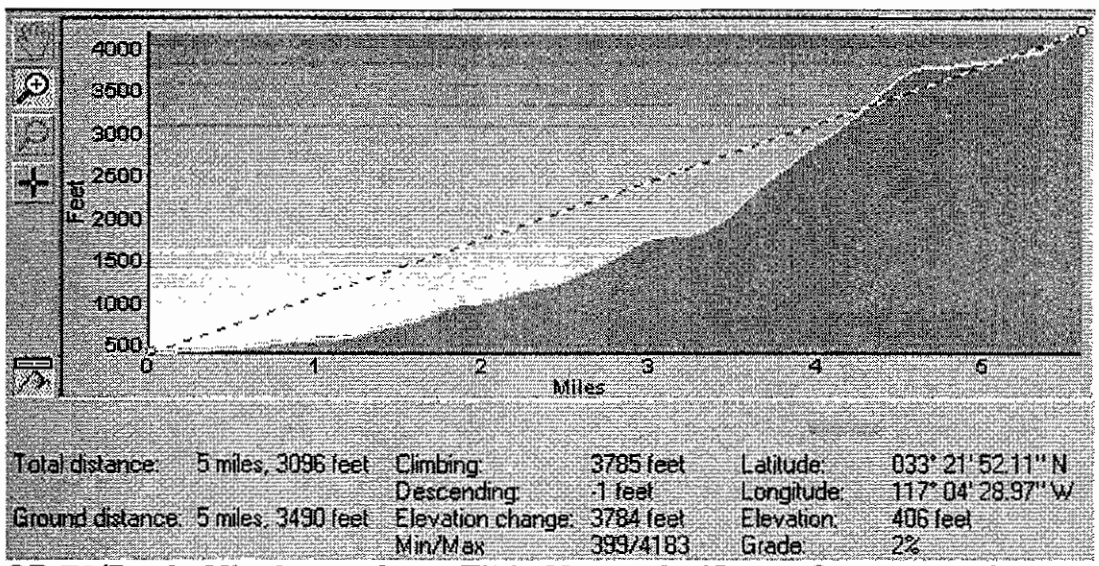
Exhibit 2
Geometry of Plume and Observer Lines of Sight Used for Plume Visual Impact Screening

Source: SANDAG GIS Data, 1997 and David Evans and Associates, Inc.

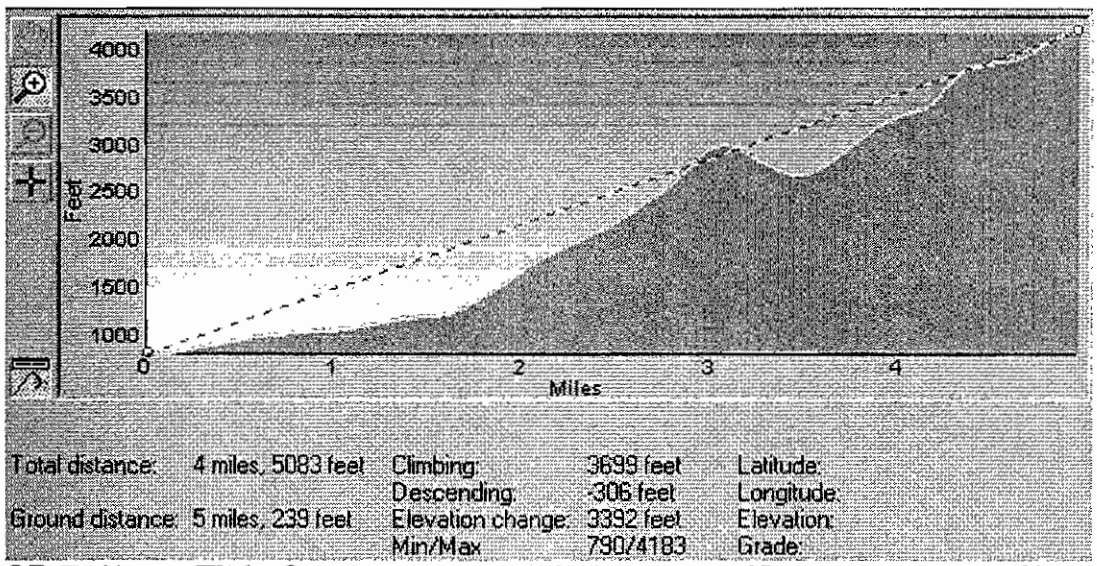
Visibility Analysis – Cross Section Diagrams



I-15/Rainbow Valley to Agua Tibia Mountain (Cross Section A-A)



SR-76/Paula Mission to Agua Tibia Mountain (Cross Section B-B)



SR-76/Agua Tibia Creek to Agua Tibia Mountain (Cross Section C-C)

Station ID: 72293 RUN ID:
Year: 1995
Date Range: Jan 1 - Dec 31
Time Range: Midnight - 11 PM

Frequency Distribution
(Normalized)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.51 - 1.80	1.80 - 3.34	3.34 - 5.40	5.40 - 8.49	8.49 - 11.06	> 11.06	Total
N	0.037443	0.010160	0.000799	0.000000	0.000000	0.000000	0.048402
NNE	0.011986	0.001598	0.000228	0.000000	0.000000	0.000000	0.013813
NE	0.005708	0.001484	0.000457	0.000000	0.000000	0.000000	0.007648
ENE	0.021119	0.003539	0.000342	0.000457	0.000000	0.000000	0.025457
E	0.070662	0.016324	0.000457	0.000342	0.000000	0.000114	0.087900
ESE	0.028995	0.007078	0.000913	0.000114	0.000000	0.000000	0.037100
SE	0.013699	0.004338	0.000685	0.000000	0.000000	0.000000	0.018721
SSE	0.012100	0.009475	0.001941	0.000228	0.000000	0.000000	0.023744
S	0.015183	0.010046	0.003082	0.000228	0.000685	0.000114	0.029338
SSW	0.011416	0.011073	0.006507	0.001370	0.000114	0.000000	0.030479
SW	0.014954	0.014954	0.007534	0.001598	0.000000	0.000000	0.039041
WSW	0.019863	0.021575	0.009018	0.000685	0.000000	0.000000	0.051142
W	0.027283	0.036644	0.020890	0.001712	0.000000	0.000000	0.086530
WNW	0.030023	0.058447	0.034247	0.002854	0.000000	0.000000	0.125571
NW	0.030479	0.055137	0.030479	0.001142	0.000000	0.000000	0.117237
NNW	0.044635	0.034247	0.007192	0.000342	0.000000	0.000000	0.086416
Total	0.395548	0.296119	0.124772	0.011073	0.000799	0.000228	

Frequency of Calm Winds : 17.15%
Average Wind Speed : 2.18 m/s

Station ID: 72293 RUN ID:
Year: 1995
Date Range: Jan 1 - Dec 31
Time Range: Midnight - 11 PM

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.51 - 1.80	1.80 - 3.34	3.34 - 5.40	5.40 - 8.49	8.49 - 11.06	> 11.06	Total
N	328	89	7	0	0	0	424
NNE	105	14	2	0	0	0	121
NE	50	13	4	0	0	0	67
ENE	185	31	3	4	0	0	223
E	619	143	4	3	0	1	770
ESE	254	62	8	1	0	0	325
SE	120	38	6	0	0	0	164
SSE	106	83	17	2	0	0	208
S	133	88	27	2	6	1	257
SSW	100	97	57	12	1	0	267
SW	131	131	66	14	0	0	342
WSW	174	189	79	6	0	0	448
W	239	321	183	15	0	0	758
WNW	263	512	300	25	0	0	1100
NW	267	483	267	10	0	0	1027
NNW	391	300	63	3	0	0	757
Total	3465	2594	1093	97	7	2	

Frequency of Calm Winds : 1502
Average Wind Speed : 2.18 m/s

Station ID: 72293 RUN ID:
Year: 1995
Date Range: Jan 1 - Dec 31
Time Range: Midnight - 11 PM

Frequency Distribution
(Normalized)

Wind Direction (Blowing From) / Stability Classes

	A	B	C	D	E	F	Total
N	0.000342	0.002740	0.004795	0.015753	0.006963	0.017808	0.048402
NNE	0.000000	0.001256	0.000685	0.004795	0.001826	0.005251	0.013813
NE	0.000114	0.000457	0.000799	0.001941	0.001142	0.003196	0.007648
ENE	0.000000	0.000000	0.001484	0.003995	0.002511	0.017466	0.025457
E	0.000000	0.000342	0.001598	0.009018	0.010616	0.066324	0.087900
ESE	0.000000	0.001027	0.002169	0.008219	0.005137	0.020548	0.037100
SE	0.000000	0.000685	0.001826	0.006735	0.001598	0.007877	0.018721
SSE	0.000114	0.000457	0.001941	0.014269	0.003881	0.003082	0.023744
S	0.000228	0.001712	0.004566	0.017237	0.002511	0.003082	0.029338
SSW	0.000799	0.005365	0.005251	0.016096	0.001256	0.001712	0.030479
SW	0.001370	0.007877	0.007306	0.017009	0.002740	0.002740	0.039041
WSW	0.001027	0.010616	0.009589	0.019521	0.005023	0.005365	0.051142
W	0.002511	0.023288	0.019863	0.029909	0.004680	0.006279	0.086530
WNW	0.003196	0.028311	0.037100	0.036416	0.010959	0.009589	0.125571
NW	0.003082	0.029338	0.033904	0.028767	0.011073	0.011073	0.117237
NNW	0.001256	0.012671	0.009247	0.022489	0.013014	0.027740	0.086416
Total	0.014041	0.126142	0.142123	0.252169	0.084932	0.209132	

Frequency of Calm Winds : 17.15%
Average Wind Speed : 2.18 m/s

Station ID: 72293 RUN ID:
Year: 1995
Date Range: Jan 1 - Dec 31
Time Range: Midnight - 11 PM

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Stability Classes

	A	B	C	D	E	F	Total
N	3	24	42	138	61	156	424
NNE	0	11	6	42	16	46	121
NE	1	4	7	17	10	28	67
ENE	0	0	13	35	22	153	223
E	0	3	14	79	93	581	770
ESE	0	9	19	72	45	180	325
SE	0	6	16	59	14	69	164
SSE	1	4	17	125	34	27	208
S	2	15	40	151	22	27	257
SSW	7	47	46	141	11	15	267
SW	12	69	64	149	24	24	342
WSW	9	93	84	171	44	47	448
W	22	204	174	262	41	55	758
WNW	28	248	325	319	96	84	1100
NW	27	257	297	252	97	97	1027
NNW	11	111	81	197	114	243	757
Total	123	1105	1245	2209	744	1832	

Frequency of Calm Winds : 1502
Average Wind Speed : 2.18 m/s

Gregory Canyon - Determination of Stability Class for VISCREEN Analysis

Source: 1995 Meteorology Data From the Miramar Marine Corps Air Station

Stability Class	A	B	C	D	E	F	Total
Frequency Distribution	0.01404	0.12614	0.14212	0.25217	0.08493	0.20913	0.8285
%	0.01695	0.15225	0.17153	0.30435	0.10251	0.25241	
Assigned Value	1	2	3	4	5	6	
Contribution	0.0169467	0.3044926	0.5146034	1.2174152	0.5125407	1.5144634	4.080
Frequency Count	123	1105	1245	2209	744	1832	7258
%	0.01695	0.15225	0.17153	0.30435	0.10251	0.25241	
Assigned Value	1	2	3	4	5	6	
Contribution	0.0169468	0.3044916	0.5146046	1.2174153	0.5125379	1.5144668	4.080
Average Stability Class	D						

Sun Position at 33 degrees N, 117 degrees West, relative to True North

Source: The Java Sun Position Calculator (www.cs.ucla.edu/~simonw/sunpos/)

Month	GMT (degrees)	Rising Position (degrees)	Setting Position (degrees)
January	-8.0	251	111
February	-8.0	255	104
March	-7.0	272	96
April	-7.0	284	79
May	-7.0	293	62
June	-7.0	308	57
July	-7.0	307	55
August	-7.0	303	59
September	-7.0	287	77
October	-8.0	270	88
November	-8.0	261	98
December	-8.0	247	111

Annual Emissions for Initial Construction Year
tons per Year (tpy), lb/yr (TACS)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Fill Haul Road[1]	Stockpile A Haul Road[1]	Stockpile B Haul Road[1]	Landfill Area Excavation	Soil Loading at Landfill Area	Soil Unloading at SPA	Soil Unloading at Fill Area	Stockpile A Wind Erosion	Stockpile B Wind Erosion	Landfill Area Wind Erosion	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Ancillary Construction	Restoration Activities	Total[2]
ROG		0.000	0.003	0.046	1.811	1.318	0.196	0.066	0.024	0.009						0.022	0.022		0.392	6.150	0.328	10.4
CO		0.000	0.036	0.410	15.645	11.384	1.690	0.570	0.210	0.076					5.90	0.190	0.190		3.380	9.210	1.765	50.7
NOx		0.000	0.045	0.728	28.370	20.641	3.067	1.035	0.380	0.137					1.50	0.345	0.345		6.134	12.410	2.817	78.0

Conformity Analysis: Annual Emissions for Initial Operational Yea
tons/yr

	Paved Main Road	Unpaved Stabilized Main Road[(1)]	Unpaved Main Road[(1)]	Unpaved Landfill Deck Road[(1)]	Unpaved Fill Haul Road[(1)]	Unpaved Daily Cover Road[(1)]	Unpaved Stockpile B Haul Road[(1)]	Landfill Area Excavation	Soil Loading at Landfill Excavation Area	Soil Unloading at SPB	Soil Unloading at Fill Area	Soil Unloading and Compaction at Daily Cover	MSW Spreading and Compaction	Daily Cover Wind Erosion (Disturbed)	Stockpile B Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Disturbed)	Landfill Area Wind Erosion (Undisturbed)	Drilling	Blasting	Loading Rock at Landfill	Unloading Rock at SPB	Rock Crushing	Clay Liner	Total (tons/yr)
ROG		0.00	0.00	0.00	0.12	0.19	2.76	0.22	0.07	0.05	0.00	0.22	0.43							0.00	0.00		0.43	4.49
Construction					0.12			0.22			0.00									0.00	0.00		0.43	**0.77**
Operation		0.00	0.00	0.00		0.19	2.76		0.07	0.05		0.22	0.43											3.72
CO		0.00	0.02	0.01	1.07	1.62	23.82	1.86	0.60	0.47	0.00	1.93	3.72						0.27	0.00	0.00		3.72	39.11
Construction					1.07			1.86			0.00								0.27	0.00	0.00		3.72	**6.92**
Operation		0.00	0.02	0.01		1.62	23.82		0.60	0.47		1.93	3.72											32.19
NOX		0.00	0.03	0.01	1.93	2.90	43.22	3.37	1.09	0.85	0.00	3.51	6.75						0.07	0.00	0.00		6.75	70.47
Construction					1.93			3.37			0.00								0.07	0.00	0.00		6.75	**12.12**
Operation		0.00	0.03	0.01		2.90	43.22		1.09	0.85		3.51	6.75											58.35

Conformity Analysis: Annual Emissions for Interim Operational Year
tons per year (tpy)

	Paved Main Road	Unpaved Stabilized Main Road[1]	Unpaved Main Road[1]	Unpaved Landfill Deck[1]	Borrow Area B Haul Road[1]	Excavation at SPB	Daily Cover Loading at SPB	Daily Cover Spreading at AF	Daily Cover Compaction at AF	MSW Spreading and Compacting	Wind Erosion (SPB Disturbed)	Wind Erosion (SPB Undisturbed)	Wind Erosion (Landfill Disturbed)	Wind Erosion (Landfill Undisturbed)	Flares	Landfill Gas Fugitive	Total (ton/yr)
VOC		0.00	0.00	0.00	0.30	0.14	0.05	0.02	0.14	0.28					1.34	3.52	5.79
Construction					0.30												**0.30**
Operation		0.00	0.00	0.00		0.14	0.05	0.02	0.14	0.28					1.34	3.52	5.49
CO		0.00	0.04	0.01	2.59	1.19	0.42	0.21	1.19	2.38					0.38	0.27	8.69
Construction					2.59												**2.59**
Operation		0.00	0.04	0.01		1.19	0.42	0.21	1.19	2.38					0.38	0.27	6.10
NOx		0.01	0.05	0.02	4.69	2.16	0.77	0.38	2.16	4.32					7.54		22.10
Construction					4.69												**4.69**
Operation		0.01	0.05	0.02		2.16	0.77	0.38	2.16	4.32					7.54		17.40

GCLF Off-Road Vehicle Greenhouse Gas Emissions for Operational Year -1

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity[1]

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					(hrs/day)	(days/year)
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	10	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	10	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	10	307
Dozer	Excavation	357.1	0.540	192.8	10	307
Dozer	Clay Liner Installation	357.1	0.540	192.8	10	307
Compactor	Compacting Clay Liner	357.1	0.540	192.8	10	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007).

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Source	Emission Factor (g/bhp-hr)	
	CO_2	CH_4
Scraper (Tractor Engine)	568.3	0.05
Scraper (Scraper Engine)	568.3	0.05
Grader	568.3	0.06
Dozer	568.3	0.062
Dozer	568.3	0.062
Compactor	568.3	0.038

Table Notes:

1. Based on emission factors from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007).

Estimate No. of Equipment

Source	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Scraper/Grader from Exc. to SPA	20.3	BCY/trip	271.0	trips/day	0.318	8.0
Scraper	Scraper/Grader from Exc. to Fill	20.3	BCY/trip	271.0	trips/day	0.040	1.0
Scraper	Scraper/Grader from LF to SPB	20.3	BCY/trip	82871.0	trips/yr	0.212	5.0
Grader	Haul Road Maintenance	--	--	2.140	miles/hr	0.285	1.0
Dozer	Excavation	900.0	BCY/hr	--	--	--	1.0
Dozer	Clay Liner Installation	900.0	BCY/hr	--	--	--	1.0
Compactor	Clay Liner Compaction	672.7	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Annual Emissions (metric tons per year)		
		CO_2	CH_4	CO_2e
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	5495.652	0.484	5505.806
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	5495.652	0.484	5505.806
Grader[1]	Haul Road Maintenance	184.858	0.020	185.268
Dozer	Excavation	336.428	0.037	337.199
Dozer	Clay Liner Installation	336.428	0.037	337.199
Compactor	Clay Liner Compacting	336.428	0.022	336.901
	Diesel Equipment Exhaust Total	12185.446	1.082	12208.177

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case.

GCLF Off-Road Vehicle Greenhouse Gas Emissions for Operational Year 1

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity[1]

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					(hrs/day)	(days/year)
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	Clay Liner Installation	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307
Compactor	Compacting Clay Liner	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Source	Emission Factor (g/bhp-hr)	
	CO_2	CH_4
Scraper (Tractor Engine)	568.3	0.045
Scraper (Scraper Engine)	568.3	0.045
Grader	568.3	0.053
Dozer	568.3	0.056
Dozer	568.3	0.056
Dozer	568.3	0.056
Compactor	568.3	0.034
Compactor	568.3	0.034
Compactor	568.3	0.034

Table Notes:

1. Based on emission factors from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Scraper/Grader DC Haul Rd	20.3	BCY/trip	100.0	trips/day	0.106	1.0
Scraper	Scraper/Grader Fill Haul Rd	20.3	BCY/trip	65.0	trips/day	0.055	1.0
Scraper	Scraper/Grader SPB Haul Rd	20.3	BCY/trip	616.9	trips/day	0.182	10.0
Grader	Haul Road Maintenance	--	--	1.553	miles/hr	0.207	1.0
Dozer	Excavation	600.0	BCY/hr	--	--	--	1.0
Dozer	Clay Liner Installation	900.0	BCY/hr	--	--	--	1.0
Dozer	Waste Spreading	900.0	BCY/hr		--	--	1.0
Compactor	Compacting Waste	2728.0	CCY/hr		--	--	1.0
Compactor	Compacting Cover	1705.0	CCY/hr		--	--	1.0
Compactor	Compacting Clay Liner	672.7	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Annual Emissions (metric tons per year)		
		CO_2	CH_4	CO_2e
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	5181.615	0.410	5190.231
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	5181.615	0.410	5190.231
Grader[1]	Haul Road Maintenance	203.344	0.019	203.742
Dozer	Excavation	370.071	0.036	370.837
Dozer	Clay Liner Installation	370.071	0.036	370.837
Dozer	Waste Spreading	370.071	0.036	370.837
Compactor	Compacting Waste	370.071	0.022	370.536
Compactor	Compacting Cover	370.071	0.022	370.536
Compactor	Compacting Clay Liner	370.071	0.022	370.536
	Diesel Equipment Exhaust Total	12786.998	1.015	12808.321

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case

GCLF Off-Road Vehicle Greenhouse Gas Emissions for Operational Year 10

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity[1]

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					(hrs/day)	(days/year)
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Source	Emission Factor (g/bhp-hr)	
	CO_2	CH_4
Scraper (Tractor Engine)	568.3	0.045
Scraper (Scraper Engine)	568.3	0.045
Grader	568.3	0.053
Dozer	568.3	0.056
Dozer	568.3	0.056
Compactor	568.3	0.034
Compactor	568.3	0.034

Table Notes:

1. Based on emission factors from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from SPB/BAB to landfill	20.3	BCY/trip	100.0	trips/day	0.131	2.0
Grader	Haul Road Maintenance	--	--	--	--	--	1.0
Dozer	Excavation	600.0	BCY/hr	--	--	--	1.0
Dozer	Waste Spreading	900.0	BCY/hr	--	--	--	1.0
Compactor	Compacting Waste	2728.0	CCY/hr	--	--	--	1.0
Compactor	Compacting Cover	1705.0	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Annual Emissions (metric tons per year)		
		CO_2	CH_4	CO_2e
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	863.602	0.068	865.038
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	863.602	0.068	865.038
Grader[1]	Haul Road Maintenance	203.344	0.019	203.742
Dozer	Excavation	370.071	0.036	370.837
Dozer	Waste Spreading	370.071	0.036	370.837
Compactor	Compacting Waste	370.071	0.022	370.536
Compactor	Compacting Cover	370.071	0.022	370.536
Diesel Equipment Exhaust Total		3410.832	0.273	3416.564

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case

GCLF Off-Road Vehicle Greenhouse Gas Emissions for Operational Year 25

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity[1]

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					(hrs/day)	(days/year)
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Source	Emission Factor (g/bhp-hr)	
	CO_2	CH_4
Scraper (Tractor Engine)	568.3	0.018
Scraper (Scraper Engine)	568.3	0.018
Grader	568.3	0.017
Dozer	568.3	0.022
Dozer	568.3	0.022
Compactor	568.3	0.014
Compactor	568.3	0.014

Table Notes:

1. Based on emission factors from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from SPB/BAB to landfill	20.3	BCY/trip	100.0	trips/day	0.156	2.0
Grader	Haul Road Maintenance	--	--	--	--	--	1.0
Dozer	Excavation	600.0	BCY/hr	--	--	--	1.0
Dozer	Waste Spreading	900.0	BCY/hr	--	--	--	1.0
Compactor	Compacting Waste	2728.0	CCY/hr	--	--	--	1.0
Compactor	Compacting Cover	1705.0	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Annual Emissions (metric tons per year)		
		CO_2	CH_4	CO_2e
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	863.602	0.027	864.177
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	863.602	0.027	864.177
Grader[1]	Haul Road Maintenance	203.344	0.006	203.472
Dozer	Excavation	370.071	0.014	370.372
Dozer	Waste Spreading	370.071	0.014	370.372
Compactor	Compacting Waste	370.071	0.009	370.262
Compactor	Compacting Cover	370.071	0.009	370.262
Diesel Equipment Exhaust Total		3410.832	0.108	3413.093

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case

GCLF Off-Road Vehicle Greenhouse Gas Emissions for Operational Year 30

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity[1]

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					(hrs/day)	(days/year)
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Source	Emission Factor (g/bhp-hr)	
	CO_2	CH_4
Scraper (Tractor Engine)	568.3	0.018
Scraper (Scraper Engine)	568.3	0.018
Grader	568.3	0.017
Dozer	568.3	0.022
Dozer	568.3	0.022
Compactor	568.3	0.014
Compactor	568.3	0.014

Table Notes:

1. Based on emission factors from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from SPB/BAB to landfill	20.3	BCY/trip	100.0	trips/day	0.298	3.0
Grader	Haul Road Maintenance	--	--	--	--	--	1.0
Dozer	Excavation	600.0	BCY/hr	--	--	--	1.0
Dozer	Waste Spreading	900.0	BCY/hr	--	--	--	1.0
Compactor	Compacting Waste	2728.0	CCY/hr	--	--	--	1.0
Compactor	Compacting Cover	1705.0	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Annual Emissions (metric tons per year)		
		CO_2	CH_4	CO_2e
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	1295.404	0.041	1296.265
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	1295.404	0.041	1296.265
Grader[1]	Haul Road Maintenance	203.344	0.006	203.472
Dozer	Excavation	370.071	0.014	370.372
Dozer	Waste Spreading	370.071	0.014	370.372
Compactor	Compacting Waste	370.071	0.009	370.262
Compactor	Compacting Cover	370.071	0.009	370.262
Diesel Equipment Exhaust Total		4274.435	0.135	4277.270

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case

GCLF Off-Road Vehicle Greenhouse Gas Emissions for Operational Year 31 (Closure)

Vehicle Activity (Tailpipe)

Diesel Operated Equipment Activity[1]

Source	Use	Rating (bhp)[1]	Load Factor	Output (bhp)	Operating Schedule	
					(hrs/day)	(days/year)
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	312.5	0.720	225.0	11	307
Grader	Haul Road Maintenance	173.7	0.610	106.0	11	307
Dozer	Excavation	357.1	0.540	192.8	11	307
Dozer	Waste Spreading	357.1	0.540	192.8	11	307
Compactor	Compacting Waste	357.1	0.540	192.8	11	307
Compactor	Compacting Cover	357.1	0.540	192.8	11	307

Table Notes:

1. The brake horsepower (bhp) ratings and load factors are from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Emission Factors

Off-road Diesel Engine Emissions (g/bhp-hr)[1]

Source	Emission Factor (g/bhp-hr)	
	CO_2	CH_4
Scraper (Tractor Engine)	568.3	0.018
Scraper (Scraper Engine)	568.3	0.018
Grader	568.3	0.017
Dozer	568.3	0.022
Dozer	568.3	0.022
Compactor	568.3	0.014
Compactor	568.3	0.014

Table Notes:

1. Based on emission factors from similar class equipment from OFFROAD Emissions Inventory Model (CARB, 11/2007)

Estimate No. of Equipment

	Use	Equipment Material Capacity	Units	Trips	Units	Total Time (hr/trip)	Equivalent No.of Equipment
Scraper	Movement from SPB/BAB to landfill	20.3	BCY/trip	106.0	trips/day	0.722	7.0
Grader	Haul Road Maintenance	--	--	--	--	--	1.0
Dozer	Excavation	900.0	BCY/hr	--	--	--	1.0
Dozer	Waste Spreading	900.0	BCY/hr	--	--	--	1.0
Compactor	Compacting Waste	672.7	CCY/hr	--	--	--	0.0
Compactor	Compacting Cover	672.7	CCY/hr	--	--	--	1.0

Emissions by Equipment

Source	Use	Annual Emissions (metric tons per year)		
		CO_2	CH_4	CO_2e
Scraper (Tractor Engine)	Haul Roads, Loading, Unloading	3022.608	0.096	3024.619
Scraper (Scraper Engine)	Haul Roads, Loading, Unloading	3022.608	0.096	3024.619
Grader[1]	Haul Road Maintenance	203.344	0.006	203.472
Dozer	Excavation	370.071	0.014	370.372
Dozer	Waste Spreading	370.071	0.014	370.372
Compactor	Compacting Waste	0.000	0.000	0.000
Compactor	Compacting Cover	370.071	0.009	370.262
Diesel Equipment Exhaust Total		7358.773	0.235	7363.715

Table Notes:

1. Assumed one grader performing daily maintenance and quarterly maintenance (one hour per day total use) as maximum case

Gregory Canyon Access Road & Bridge

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	20	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Begin construction in 2014

Off-road Equipment - CalEEMod Default equipment list (See Ancillary Structures.xls)

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Grading - Assume export already counted

Construction Off-road Equipment Mitigation - Use of Tier 2 engines, Watering exposed areas and unpaved roads at least twice daily (55% PM reduction)

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.59	4.13	2.68	0.00	0.18	0.23	0.42	0.08	0.23	0.31	0.00	448.35	448.35	0.05	0.00	449.32
Total	**0.59**	**4.13**	**2.68**	**0.00**	**0.18**	**0.23**	**0.42**	**0.08**	**0.23**	**0.31**	**0.00**	**448.35**	**448.35**	**0.05**	**0.00**	**449.32**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	1.85	3.83	2.83	0.00	0.09	0.19	0.27	0.04	0.19	0.22	0.00	448.35	448.35	0.05	0.00	449.32
Total	**1.85**	**3.83**	**2.83**	**0.00**	**0.09**	**0.19**	**0.27**	**0.04**	**0.19**	**0.22**	**0.00**	**448.35**	**448.35**	**0.05**	**0.00**	**449.32**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.08	0.63	0.39	0.00		0.03	0.03		0.03	0.03	0.00	64.71	64.71	0.01	0.00	64.85
Total	**0.08**	**0.63**	**0.39**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**64.71**	**64.71**	**0.01**	**0.00**	**64.85**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	1.25
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**1.24**	**0.00**	**0.00**	**1.25**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.24	0.54	0.39	0.00		0.02	0.02		0.02	0.02	0.00	64.71	64.71	0.01	0.00	64.85
Total	**0.24**	**0.54**	**0.39**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**64.71**	**64.71**	**0.01**	**0.00**	**64.85**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	1.25
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**1.24**	**0.00**	**0.00**	**1.25**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.19	0.11	0.00		0.01	0.01		0.01	0.01	0.00	18.13	18.13	0.00	0.00	18.17
Total	**0.02**	**0.19**	**0.11**	**0.00**	**0.05**	**0.01**	**0.06**	**0.02**	**0.01**	**0.03**	**0.00**	**18.13**	**18.13**	**0.00**	**0.00**	**18.17**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.39**	**0.39**	**0.00**	**0.00**	**0.39**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.08	0.15	0.10	0.00		0.01	0.01		0.01	0.01	0.00	18.13	18.13	0.00	0.00	18.17
Total	**0.08**	**0.15**	**0.10**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**0.01**	**0.02**	**0.00**	**18.13**	**18.13**	**0.00**	**0.00**	**18.17**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.39**	**0.39**	**0.00**	**0.00**	**0.39**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.13	0.00	0.13	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.17	1.36	0.76	0.00		0.06	0.06		0.06	0.06	0.00	147.69	147.69	0.01	0.00	147.98
Total	**0.17**	**1.36**	**0.76**	**0.00**	**0.13**	**0.06**	**0.19**	**0.05**	**0.06**	**0.11**	**0.00**	**147.69**	**147.69**	**0.01**	**0.00**	**147.98**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62	2.62	0.00	0.00	2.62
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.62**	**2.62**	**0.00**	**0.00**	**2.62**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.57	1.23	0.85	0.00		0.05	0.05		0.05	0.05	0.00	147.69	147.69	0.01	0.00	147.98
Total	**0.57**	**1.23**	**0.85**	**0.00**	**0.06**	**0.05**	**0.11**	**0.02**	**0.05**	**0.07**	**0.00**	**147.69**	**147.69**	**0.01**	**0.00**	**147.98**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62	2.62	0.00	0.00	2.62
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.62**	**2.62**	**0.00**	**0.00**	**2.62**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.24	1.60	1.16	0.00		0.10	0.10		0.10	0.10	0.00	183.23	183.23	0.02	0.00	183.63
Total	**0.24**	**1.60**	**1.16**	**0.00**		**0.10**	**0.10**		**0.10**	**0.10**	**0.00**	**183.23**	**183.23**	**0.02**	**0.00**	**183.63**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.76	1.63	1.25	0.00		0.09	0.09		0.09	0.09	0.00	183.23	183.23	0.02	0.00	183.63
Total	**0.76**	**1.63**	**1.25**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**	**0.00**	**183.23**	**183.23**	**0.02**	**0.00**	**183.63**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.05	0.32	0.21	0.00		0.03	0.03		0.03	0.03	0.00	26.46	26.46	0.00	0.00	26.55
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.08**	**0.32**	**0.21**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**26.46**	**26.46**	**0.00**	**0.00**	**26.55**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.31	0.00	0.00	1.31
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.31**	**1.31**	**0.00**	**0.00**	**1.31**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.15	0.25	0.19	0.00		0.02	0.02		0.02	0.02	0.00	26.46	26.46	0.00	0.00	26.55
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.18**	**0.25**	**0.19**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**26.46**	**26.46**	**0.00**	**0.00**	**26.55**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.31	0.00	0.00	1.31
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.31**	**1.31**	**0.00**	**0.00**	**1.31**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.55	2.55	0.00	0.00	2.56
Total	**0.00**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.55**	**2.55**	**0.00**	**0.00**	**2.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.55	2.55	0.00	0.00	2.56
Total	**0.01**	**0.02**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.55**	**2.55**	**0.00**	**0.00**	**2.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Gregory Canyon Admin Building

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	4	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Construction begins in 2014

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Grading - Assume export already accounted for

Construction Off-road Equipment Mitigation - Use of Tier 2 engines, Watering exposed areas and unpaved roads at least twice daily (55% PM reduction)

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.13	0.60	0.39	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	68.64	68.64	0.01	0.00	68.78
Total	**0.13**	**0.60**	**0.39**	**0.00**	**0.00**	**0.04**	**0.04**	**0.00**	**0.04**	**0.04**	**0.00**	**68.64**	**68.64**	**0.01**	**0.00**	**68.78**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.34	0.59	0.44	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	68.64	68.64	0.01	0.00	68.78
Total	**0.34**	**0.59**	**0.44**	**0.00**	**0.00**	**0.03**	**0.03**	**0.00**	**0.03**	**0.03**	**0.00**	**68.64**	**68.64**	**0.01**	**0.00**	**68.78**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.07	0.05	0.00		0.00	0.00		0.00	0.00	0.00	6.69	6.69	0.00	0.00	6.71
Total	**0.01**	**0.07**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**6.69**	**6.69**	**0.00**	**0.00**	**6.71**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.00	0.00	0.44
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.44**	**0.44**	**0.00**	**0.00**	**0.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	6.69	6.69	0.00	0.00	6.71
Total	**0.04**	**0.06**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**6.69**	**6.69**	**0.00**	**0.00**	**6.71**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.00	0.00	0.44
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.44**	**0.44**	**0.00**	**0.00**	**0.44**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.00	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	1.06	1.06	0.00	0.00	1.06
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.06**	**1.06**	**0.00**	**0.00**	**1.06**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.07**	**0.00**	**0.00**	**0.07**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.01	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	1.06	1.06	0.00	0.00	1.06
Total	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.06**	**1.06**	**0.00**	**0.00**	**1.06**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.07**	**0.00**	**0.00**	**0.07**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.06	0.47	0.30	0.00		0.03	0.03		0.03	0.03	0.00	54.26	54.26	0.00	0.00	54.36
Total	**0.06**	**0.47**	**0.30**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**54.26**	**54.26**	**0.00**	**0.00**	**54.36**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.23	0.00	0.00	1.24
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.00	0.00	0.44
Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.67**	**1.67**	**0.00**	**0.00**	**1.68**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.23	0.47	0.35	0.00		0.02	0.02		0.02	0.02	0.00	54.26	54.26	0.00	0.00	54.36
Total	**0.23**	**0.47**	**0.35**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**54.26**	**54.26**	**0.00**	**0.00**	**54.36**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.23	0.00	0.00	1.24
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.00	0.00	0.44
Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.67**	**1.67**	**0.00**	**0.00**	**1.68**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.94	2.94	0.00	0.00	2.94
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.94**	**2.94**	**0.00**	**0.00**	**2.94**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.22**	**0.22**	**0.00**	**0.00**	**0.22**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.94	2.94	0.00	0.00	2.94
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.94**	**2.94**	**0.00**	**0.00**	**2.94**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.22**	**0.22**	**0.00**	**0.00**	**0.22**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.05					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.05**	**0.01**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.05					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.05**	**0.01**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Gregory Canyon Equipment & Storage Area

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	24.5	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Construction begins in 2014 and ends by 2015

Grading -

Construction Off-road Equipment Mitigation - Use of Tier 2 engines, Watering exposed areas and unpaved roads at least twice daily (55% PM reduction)

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.90	6.23	4.13	0.01	0.25	0.36	0.61	0.11	0.36	0.48	0.00	680.66	680.66	0.07	0.00	682.15
Total	**0.90**	**6.23**	**4.13**	**0.01**	**0.25**	**0.36**	**0.61**	**0.11**	**0.36**	**0.48**	**0.00**	**680.66**	**680.66**	**0.07**	**0.00**	**682.15**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	2.84	5.87	4.36	0.01	0.12	0.30	0.41	0.05	0.30	0.35	0.00	680.66	680.66	0.07	0.00	682.15
Total	**2.84**	**5.87**	**4.36**	**0.01**	**0.12**	**0.30**	**0.41**	**0.05**	**0.30**	**0.35**	**0.00**	**680.66**	**680.66**	**0.07**	**0.00**	**682.15**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.08	0.63	0.39	0.00		0.03	0.03		0.03	0.03	0.00	64.71	64.71	0.01	0.00	64.85
Total	**0.08**	**0.63**	**0.39**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**64.71**	**64.71**	**0.01**	**0.00**	**64.85**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	1.25
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**1.24**	**0.00**	**0.00**	**1.25**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.24	0.54	0.39	0.00		0.02	0.02		0.02	0.02	0.00	64.71	64.71	0.01	0.00	64.85
Total	**0.24**	**0.54**	**0.39**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**64.71**	**64.71**	**0.01**	**0.00**	**64.85**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	1.25
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**1.24**	**0.00**	**0.00**	**1.25**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.09	0.00	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.37	0.22	0.00		0.02	0.02		0.02	0.02	0.00	36.27	36.27	0.00	0.00	36.35
Total	**0.05**	**0.37**	**0.22**	**0.00**	**0.09**	**0.02**	**0.11**	**0.05**	**0.02**	**0.07**	**0.00**	**36.27**	**36.27**	**0.00**	**0.00**	**36.35**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.00	0.00	0.79
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.79**	**0.79**	**0.00**	**0.00**	**0.79**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.16	0.31	0.20	0.00		0.01	0.01		0.01	0.01	0.00	36.27	36.27	0.00	0.00	36.35
Total	**0.16**	**0.31**	**0.20**	**0.00**	**0.04**	**0.01**	**0.05**	**0.02**	**0.01**	**0.03**	**0.00**	**36.27**	**36.27**	**0.00**	**0.00**	**36.35**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.00	0.00	0.79
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.79**	**0.79**	**0.00**	**0.00**	**0.79**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.15	0.00	0.15	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.20	1.59	0.89	0.00		0.07	0.07		0.07	0.07	0.00	172.31	172.31	0.02	0.00	172.64
Total	**0.20**	**1.59**	**0.89**	**0.00**	**0.15**	**0.07**	**0.22**	**0.06**	**0.07**	**0.13**	**0.00**	**172.31**	**172.31**	**0.02**	**0.00**	**172.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.05	3.05	0.00	0.00	3.06
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.05**	**3.05**	**0.00**	**0.00**	**3.06**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.07	0.00	0.07	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.67	1.43	0.99	0.00		0.06	0.06		0.06	0.06	0.00	172.31	172.31	0.02	0.00	172.64
Total	**0.67**	**1.43**	**0.99**	**0.00**	**0.07**	**0.06**	**0.13**	**0.03**	**0.06**	**0.09**	**0.00**	**172.31**	**172.31**	**0.02**	**0.00**	**172.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.05	3.05	0.00	0.00	3.06
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.05**	**3.05**	**0.00**	**0.00**	**3.06**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.46	3.14	2.27	0.00		0.20	0.20		0.20	0.20	0.00	359.13	359.13	0.04	0.00	359.92
Total	**0.46**	**3.14**	**2.27**	**0.00**		**0.20**	**0.20**		**0.20**	**0.20**	**0.00**	**359.13**	**359.13**	**0.04**	**0.00**	**359.92**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.50	3.19	2.44	0.00		0.18	0.18		0.18	0.18	0.00	359.13	359.13	0.04	0.00	359.92
Total	**1.50**	**3.19**	**2.44**	**0.00**		**0.18**	**0.18**		**0.18**	**0.18**	**0.00**	**359.13**	**359.13**	**0.04**	**0.00**	**359.92**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

3.6 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.12	0.08	0.00		0.01	0.01		0.01	0.01	0.00	11.22	11.22	0.00	0.00	11.25
Total	**0.02**	**0.12**	**0.08**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**11.22**	**11.22**	**0.00**	**0.00**	**11.25**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.06	0.11	0.08	0.00		0.01	0.01		0.01	0.01	0.00	11.22	11.22	0.00	0.00	11.25
Total	**0.06**	**0.11**	**0.08**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**11.22**	**11.22**	**0.00**	**0.00**	**11.25**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

3.7 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.06	0.37	0.24	0.00		0.03	0.03		0.03	0.03	0.00	30.43	30.43	0.00	0.00	30.53
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.09**	**0.37**	**0.24**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**30.43**	**30.43**	**0.00**	**0.00**	**30.53**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	1.51	0.00	0.00	1.51
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.51**	**1.51**	**0.00**	**0.00**	**1.51**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.17	0.29	0.22	0.00		0.02	0.02		0.02	0.02	0.00	30.43	30.43	0.00	0.00	30.53
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.20**	**0.29**	**0.22**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**30.43**	**30.43**	**0.00**	**0.00**	**30.53**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	1.51	0.00	0.00	1.51
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.51**	**1.51**	**0.00**	**0.00**	**1.51**

Gregory Canyon Maintenance Building

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Construction begins 2014

Off-road Equipment -

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment - See Ancillary Structures.xls

Off-road Equipment -

Grading - Accounted for in other calculations.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.16	0.60	0.40	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	69.08	69.08	0.01	0.00	69.21
Total	**0.16**	**0.60**	**0.40**	**0.00**	**0.00**	**0.04**	**0.04**	**0.00**	**0.04**	**0.04**	**0.00**	**69.08**	**69.08**	**0.01**	**0.00**	**69.21**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.38	0.59	0.44	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	69.08	69.08	0.01	0.00	69.21
Total	**0.38**	**0.59**	**0.44**	**0.00**	**0.00**	**0.03**	**0.03**	**0.00**	**0.03**	**0.03**	**0.00**	**69.08**	**69.08**	**0.01**	**0.00**	**69.21**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.07	0.05	0.00		0.00	0.00		0.00	0.00	0.00	6.69	6.69	0.00	0.00	6.71
Total	**0.01**	**0.07**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**6.69**	**6.69**	**0.00**	**0.00**	**6.71**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.00	0.00	0.44
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.44**	**0.44**	**0.00**	**0.00**	**0.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	6.69	6.69	0.00	0.00	6.71
Total	**0.04**	**0.06**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**6.69**	**6.69**	**0.00**	**0.00**	**6.71**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.00	0.00	0.44
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.44**	**0.44**	**0.00**	**0.00**	**0.44**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.00	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	1.06	1.06	0.00	0.00	1.06
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.06**	**1.06**	**0.00**	**0.00**	**1.06**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.07**	**0.00**	**0.00**	**0.07**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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
Off-Road	0.01	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	1.06	1.06	0.00	0.00	1.06
Total	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.06**	**1.06**	**0.00**	**0.00**	**1.06**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.07**	**0.00**	**0.00**	**0.07**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.06	0.47	0.30	0.00		0.03	0.03		0.03	0.03	0.00	54.26	54.26	0.00	0.00	54.36
Total	**0.06**	**0.47**	**0.30**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**54.26**	**54.26**	**0.00**	**0.00**	**54.36**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.23	0.00	0.00	1.24
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.00	0.00	0.87
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.10**	**2.10**	**0.00**	**0.00**	**2.11**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.23	0.47	0.35	0.00		0.02	0.02		0.02	0.02	0.00	54.26	54.26	0.00	0.00	54.36
Total	**0.23**	**0.47**	**0.35**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**54.26**	**54.26**	**0.00**	**0.00**	**54.36**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.23	0.00	0.00	1.24
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.00	0.00	0.87
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.10**	**2.10**	**0.00**	**0.00**	**2.11**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.94	2.94	0.00	0.00	2.94
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.94**	**2.94**	**0.00**	**0.00**	**2.94**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.22**	**0.22**	**0.00**	**0.00**	**0.22**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.94	2.94	0.00	0.00	2.94
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.94**	**2.94**	**0.00**	**0.00**	**2.94**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.22**	**0.22**	**0.00**	**0.00**	**0.22**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.08					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.08**	**0.01**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.08					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.01	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.64	0.64	0.00	0.00	0.64
Total	**0.08**	**0.01**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.64**	**0.64**	**0.00**	**0.00**	**0.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Gregory Canyon Paved Area

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	4.16	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	San Diego Gas & Electric
Climate Zone	13		2.6		
		Precipitation Freq (Days)			
			40		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - See Ancillary Structures.xls

Off-road Equipment -

Off-road Equipment - No building construction phase.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Grading - Estimated 4.16 acres.

Construction Off-road Equipment Mitigation - Tier 2 engines; Watering exposed area and unpaved roads at least twice daily (55% reduction in PM)

Vehicle Trips -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.25	1.78	1.17	0.00	0.14	0.10	0.24	0.07	0.10	0.17	0.00	183.80	183.80	0.02	0.00	184.21
Total	**0.25**	**1.78**	**1.17**	**0.00**	**0.14**	**0.10**	**0.24**	**0.07**	**0.10**	**0.17**	**0.00**	**183.80**	**183.80**	**0.02**	**0.00**	**184.21**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.74	1.53	1.14	0.00	0.07	0.07	0.14	0.03	0.07	0.11	0.00	183.80	183.80	0.02	0.00	184.21
Total	**0.74**	**1.53**	**1.14**	**0.00**	**0.07**	**0.07**	**0.14**	**0.03**	**0.07**	**0.11**	**0.00**	**183.80**	**183.80**	**0.02**	**0.00**	**184.21**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.08	0.63	0.39	0.00		0.03	0.03		0.03	0.03	0.00	64.71	64.71	0.01	0.00	64.85
Total	**0.08**	**0.63**	**0.39**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**64.71**	**64.71**	**0.01**	**0.00**	**64.85**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	1.25
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**1.24**	**0.00**	**0.00**	**1.25**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.24	0.54	0.39	0.00		0.02	0.02		0.02	0.02	0.00	64.71	64.71	0.01	0.00	64.85
Total	**0.24**	**0.54**	**0.39**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**64.71**	**64.71**	**0.01**	**0.00**	**64.85**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	1.25
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**1.24**	**0.00**	**0.00**	**1.25**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.19	0.11	0.00		0.01	0.01		0.01	0.01	0.00	18.13	18.13	0.00	0.00	18.17
Total	**0.02**	**0.19**	**0.11**	**0.00**	**0.05**	**0.01**	**0.06**	**0.02**	**0.01**	**0.03**	**0.00**	**18.13**	**18.13**	**0.00**	**0.00**	**18.17**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.39**	**0.39**	**0.00**	**0.00**	**0.39**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.08	0.15	0.10	0.00		0.01	0.01		0.01	0.01	0.00	18.13	18.13	0.00	0.00	18.17
Total	**0.08**	**0.15**	**0.10**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**0.01**	**0.02**	**0.00**	**18.13**	**18.13**	**0.00**	**0.00**	**18.17**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.39**	**0.39**	**0.00**	**0.00**	**0.39**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.09	0.00	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.68	0.45	0.00		0.04	0.04		0.04	0.04	0.00	71.29	71.29	0.01	0.00	71.44
Total	**0.09**	**0.68**	**0.45**	**0.00**	**0.09**	**0.04**	**0.13**	**0.05**	**0.04**	**0.09**	**0.00**	**71.29**	**71.29**	**0.01**	**0.00**	**71.44**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	1.96	0.00	0.00	1.97
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.96**	**1.96**	**0.00**	**0.00**	**1.97**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.28	0.61	0.45	0.00		0.03	0.03		0.03	0.03	0.00	71.29	71.29	0.01	0.00	71.44
Total	**0.28**	**0.61**	**0.45**	**0.00**	**0.04**	**0.03**	**0.07**	**0.02**	**0.03**	**0.05**	**0.00**	**71.29**	**71.29**	**0.01**	**0.00**	**71.44**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	1.96	0.00	0.00	1.97
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.96**	**1.96**	**0.00**	**0.00**	**1.97**

3.5 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.25	0.17	0.00		0.02	0.02		0.02	0.02	0.00	21.77	21.77	0.00	0.00	21.84
Paving	0.01					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.25**	**0.17**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**21.77**	**21.77**	**0.00**	**0.00**	**21.84**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.75	0.00	0.00	1.75
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.75**	**1.75**	**0.00**	**0.00**	**1.75**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.12	0.20	0.15	0.00		0.01	0.01		0.01	0.01	0.00	21.77	21.77	0.00	0.00	21.84
Paving	0.01					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.13**	**0.20**	**0.15**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**21.77**	**21.77**	**0.00**	**0.00**	**21.84**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.75	0.00	0.00	1.75
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.75**	**1.75**	**0.00**	**0.00**	**1.75**

3.6 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.55	2.55	0.00	0.00	2.56
Total	**0.00**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.55**	**2.55**	**0.00**	**0.00**	**2.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.55	2.55	0.00	0.00	2.56
Total	**0.01**	**0.02**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.55**	**2.55**	**0.00**	**0.00**	**2.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	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	0.00
Vendor	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	0.00
Worker	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	0.00
Total	**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**	**0.00**

Gregory Canyon Landfill Draft EIS
Greenhouse Gas Emissions

Water Supply, Conveyance, Treatment, and Distribution GHG Emissions

Alternative	Action	Potable Water		Recycled Water		Annual	CO_2	CH_4	N_2O	Annual CO_2e
		Volume Estimate[1,2] (MG/yr)	Electricity Intensity Factor[3] (kW-hr/MG)	Volume Estimate[1,2] (MG/yr)	Electricity Intensity Factor[4] (kW-hr/MG)	Electrical Consumption (MW-hr/yr)	Emission Factor[5] GWP = 1 (lbs/MW-hr)	Emission Factor[5] GWP = 21 (lbs/MW-hr)	Emission Factor[5] GWP = 310 (lbs/MW-hr)	Emissions ($MTCO_2e$/yr)
Applicant's Proposed (75 afy groundwater; or 75 afy recycled water)										
	Supply & Conveyance	-	9,727	-	-	-	806.27	0.029	0.010	-
	Treatment	-	111	-	-	-	806.27	0.029	0.010	-
	Distribution	-	1,272	-	-	-	806.27	0.029	0.010	-
	Wastewater Treatment	-	1,911	-	-	-	806.27	0.029	0.010	-
	Subtotal		**13,021**			**-**				**-**
	Recycled Water/GW	-	-	24.44	3,930	96.04	806.27	0.029	0.010	35.29
	Total									**35.29**
Aspen Road (75 afy potable; No recycled water)										
	Supply & Conveyance	24.44	9,727	-	-	237.72	806.27	0.029	0.010	87.34
	Treatment	24.44	111	-	-	2.71	806.27	0.029	0.010	1.00
	Distribution	24.44	1,272	-	-	31.09	806.27	0.029	0.010	11.42
	Wastewater Treatment	24.44	1,911	-	-	46.70	806.27	0.029	0.010	17.16
	Subtotal		**13,021**			**318.218**				**116.91**
	Recycled Water/GW	-	-	-	3,930	-	806.27	0.029	0.010	-
	Total									**116.91**
Gopher Canyon Road (75 afy groundwater; or 75 afy recycled water)										
	Supply & Conveyance	-	9,727	-	-	-	806.27	0.029	0.010	-
	Treatment	-	111	-	-	-	806.27	0.029	0.010	-
	Distribution	-	1,272	-	-	-	806.27	0.029	0.010	-
	Wastewater Treatment	-	1,911	-	-	-	806.27	0.029	0.010	-
	Subtotal		**13,021**			**-**				**-**
	Recycled Water/GW	-	-	24.44	3,930	96.04	806.27	0.029	0.010	35.29
	Total									**35.29**
Meriam Mountain (75 afy groundwater; or 75 afy recycled water)										
	Supply & Conveyance	-	9,727	-	-	-	806.27	0.029	0.010	-
	Treatment	-	111	-	-	-	806.27	0.029	0.010	-
	Distribution	-	1,272	-	-	-	806.27	0.029	0.010	-
	Wastewater Treatment	-	1,911	-	-	-	806.27	0.029	0.010	-
	Subtotal		**13,021**			**-**				**-**
	Recycled Water/GW	-	-	24.44	3,930	96.04	806.27	0.029	0.010	35.29
	Total									**35.29**

Water Supply, Conveyance, Treatment, and Distribution GHG Emissions

Alternative	Action	Potable Water		Recycled Water		Annual Electrical Consumption	CO_2 Emission Factor[5] GWP = 1	CH_4 Emission Factor[5] GWP = 21	N_2O Emission Factor[5] GWP = 310	Annual CO_2e Emissions
		Volume Estimate[1,2] (MG/yr)	Electricity Intensity Factor[3] (kW-hr/MG)	Volume Estimate[1,2] (MG/yr)	Electricity Intensity Factor[4] (kW-hr/MG)	(MW-hr/yr)	(lbs/MW-hr)	(lbs/MW-hr)	(lbs/MW-hr)	($MTCO_2e$/yr)
East Otay Mesa (75 afy mixture of potable and recycled water [assume all potable])										
	Supply & Conveyance	24.44	9,727	-	-	237.72	806.27	0.029	0.010	87.34
	Treatment	24.44	111	-	-	2.71	806.27	0.029	0.010	1.00
	Distribution	24.44	1,272	-	-	31.09	806.27	0.029	0.010	11.42
	Wastewater Treatment	24.44	1,911	-	-	46.70	806.27	0.029	0.010	17.16
	Subtotal		**13,021**			**318.218**				**116.91**
	Recycled Water/GW	-	-		3,930	-	806.27	0.029	0.010	-
	Total									**116.91**
Sycamore Canyon (51,740 gpy potable and 37,020,000 gpy non-potable [incremental increase over existing Sycamore Canyon baseline])										
	Supply & Conveyance	*Calculations incorporated by Reference:* *Sycamore Landfill Master Plan Expansion Draft Environmental Impact Report, Appendix J, Greenhouse Gas Analysis, (2012).*								
	Treatment									
	Distribution									
	Wastewater Treatment									
	Subtotal									
	Recycled Water/GW									
	Total									**146.70**

Notes:

Energy intensity factors are higher for recycled water compared to local groundwater; therefore, recycled water factors are used for those alternatives that would use a combination of groundwater and recycled water.

Sources:

1. Gregory Canyon Landfill Draft EIS, Section 4.16.1, Water Supply, (2012).
2. Sycamore Landfill Master Plan Expansion Draft Environmental Impact Report, Appendix J, Greenhouse Gas Analysis, (2012).
3. California Energy Commission, *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report*, CEC-500-2006-118, (2006) 22; CalEEMod *User's Guide* , Appenedix D, Version 2011.1, (2011).
4. R. C. Wilkinson, Ph.D, *Analysis of the Energy Intensity of Water Supplies for West Basin Municipal Water District*, (2007).
5. The Climate Registry, *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*, Version 1.1, (2010) 208-209.
   The CO_2 factor is for San Diego Gas & Electricfor the most recent year in the report. The CH_4 and N_2O factors are California grid average factors for the most recent year in the report.

Where:

CH_4	Methane	MG	Million gallons
CO_2	Carbon dioxide	MW-hr	Megawatt-hour
CO_2e	Carbon dioxide equivalent	MT	Metric ton
GWP	Global warming potential	n/a	Not applicable
kW-hr	Kilowatt-hour	N_2O	Nitrous oxide
lbs	Pounds	yr	Year

Gregory Canyon Landfill Draft EIS
Greenhouse Gas Emissions

Landfill Gas and Flaring GHG Emissions

GHG	Generation on a Carbon Basis	Collection Efficiency of Landfill Gas	Destruction Efficiency of Landfill Gas	Oxidation Efficiency of Methane	Ton GHG per Ton Waste	$MTCO_2e$ per Ton Waste	Annual Waste (Tons)	$MTCO_2e$ per Year
CO2	0.0355	0.75	0.99	0.10	0.2299	0.2085	1,000,000	208,539
CH4	0.0355	0.75	0.99	0.10	0.0110	0.0100	1,000,000	9,975
CO2e					0.4608	0.4180	1,000,000	418,017

Notes:

1. Emissions calculated based on methodology provided in the: California Emissions Estimator Model (CalEEMod), *User's Guide, Appendices A and D* , (2012).

Gregory Canyon Landfill Draft EIS
Greenhouse Gas Emissions

Summary of Estimated Sycamore Canyon Expansion Alternative GHG Emissions

Source	Initial Construction	Initial Operational	Near-Term Operational	Interim Operational	Future Interim Operational	Final Operational	Closing
	$MTCO_2e$ per Year						
Existing							
Off-Road	--	5,044	5,044	5,044	5,044	5,044	5,044
On-Road	--	7,161	7,161	7,161	7,161	7,161	7,161
Energy	--	101	101	101	101	101	101
Water	--	96	96	96	96	96	96
Subtotal	**--**	**12,402**	**12,402**	**12,402**	**12,402**	**12,402**	**12,402**
Proposed							
Off-Road	--	9,377	12,613	14,998	20,249	20,249	493
On-Road	--	10,920	14,075	16,816	20,906	20,906	24
Energy	--	107	151	283	503	536	525
Water	--	243	243	243	243	243	243
Subtotal	**--**	**20,647**	**27,082**	**32,340**	**41,901**	**41,934**	**1,285**
Net Total							
Off-Road	3,700	4,333	7,569	9,954	15,205	15,205	(4,551)
On-Road	--	3,759	6,914	9,655	13,745	13,745	(7,137)
Energy	--	6	50	182	402	435	424
Water	--	147	147	147	147	147	147
Subtotal	**3,700**	**8,245**	**14,680**	**19,938**	**29,499**	**29,532**	**(11,117)**
Landfill Gas[a]	--	--	418,017	418,017	418,017	418,017	418,017
Total	3,700	8,245	432,697	437,955	447,516	447,549	406,900

a For comparison purposes, the landfill gas emissions, which includes flaring emissions, are not based on the calculations provided in the Sycamore Canyon Revised EIR (2012). The GHG emissions are calculated using CalEEMod, based on 1 million tons per year of municipal solid waste. Landfill gas GHG emissions are included as part of the baseline (No Action) scenario because they would be generated regardless of where the waste was deposited. For comparison purposes, landfill gas GHG emissions are included for the years in which the build alternatives would be in operation and are assumed to occur in the year after the waste is deposited

Source:
Sycamore Landfill Master Development Plan Revised EIR, Appendix J, Greenhouse Gas Analysis, May 2012.

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