

**Air Quality Technical Appendix
Bradley Landfill
MRF Health Risk Assessment**

October 2005

BRADLEY MRF

Bradley Landfill

Rule 1401 Health Risk Assessment

	% Controlled	Max Day - Total	Controlled	Uncontrolled	Max Hour - Total	Controlled	Uncontrolled
Refuse Trucks	80%	583	466	117	49	39	10
Transfer Trucks	80%	268	214	54	23	18	5

Action: Annual Operation Hours (hr/yr): CEQA 3744
 Fuel Type: Diesel 12 hr/day 6 day/wk

	Control	Controlled Emission Factor (g/hp-hr)	Controlled Emission (g/hr)	Uncontrolled Emission Factor (g/hr)	Uncontrolled Emission (g/hr)	Max Hour - Total	Controlled	Uncontrolled	Max Hour - Total	Controlled	Uncontrolled
Refuse Truck Fuel Use (gal/truck)	0.601					466			49		
Transfer Truck Fuel Use (gal/truck)	0.559					214			23		
Fuel Use Controlled Trucks (1000 gal/hr)	0.0335										
Fuel Use Standard Trucks (1000 gal/hr)	0.0088										
Fuel Use Controlled Trucks (1000 gal/yr)	124.7039										
Fuel Use Standard Trucks (1000 gal/yr)	31.3569										
Fuel Consumption Rate (gal/hp-hr)	0.0478										
HP Controlled Trucks (hp-hr/hr)	701										
HP Standard Trucks (hp-hr/hr)	184										
HP Controlled Trucks (hp-hr/yr)	2,608,791										
HP Standard Trucks (hp-hr/yr)	655,983										
Dispersion model used:	ISCST3										
Building Downwash?	NO										
Terrain conditions:	FLAT										

Exposure Information for adult resident and worker:

	DBR r Breathing Rate (L/kg-dy)	DBR w Breathing Rate (L/kg-dy)	AF ann r Annual Adjustment Factor	AF ann w Annual Adjustment Factor	Resident EVF	Worker EVF	Acute Risk Adjustment Factor
	302	149	1	2.30	0.96	0.38	0.500

Model Result Scaling Adjustment

Max. 1-Hr. X/Q:	460.496	230.248	372849E; 3789029 N
Resident 1-hr X/Q:	99.28	49.640	372170E; 3789300 N
Worker 1-hr X/Q:	460.496	230.248	372849E; 3789029 N
Sensitive 1-hr X/Q:	41.58	20.790	371616E; 3789579 N
Max. Annual X/Q:	7.993	7.993	372849E; 3789029 N
Resident Annual X/Q:	2.02	2.02	372170E; 3789300 N
Worker Annual X/Q:	7.993	7.993	372849E; 3789029 N
Sensitive Annual X/Q:	0.55	0.55	371616E; 3789579 N

Substance	Uncontrolled Emission Factor (g/hp-hr)	Control	Controlled Emission Factor (g/hp-hr)	Emission Rates			Max. 1-Hour Conc. (ug/m3)	Resident Annual Conc. (ug/m3)	Worker Annual Conc. (ug/m3)	Resident Inhalation Dose (mg-kg-day ⁻¹)	Worker Inhalation Dose (mg-kg-day ⁻¹)
				Hourly (lb/hr)	Annual (lb/yr)	Annual (g/sec)					
DIESEL EMISSIONS/NOT SPECIATED											
Diesel Particulate Matter	0.1490	85%	0.0224	9.50E-02	3.44E+02	4.95E-03	2.76E+00	1.00E-02	3.96E-02	2.90E-06	5.15E-06

Substance	RESIDENT			WORKER		
	Cancer Risk	Acute HI	Chronic HI	Cancer Risk	Acute HI	Chronic HI
Diesel Particulate Matter	3.19E-06	n/a	2.00E-03	5.67E-06	n/a	7.91E-03
SUM Exceed Thresholds?? (10 in one million risk for cancer, 1.0 for chronic and acute HI)	3.19E-06	0.000	0.0020	5.67E-06	0.000	0.008

-- EPA pre-1990 diesel particulate matter factors for trucks used
 -- Risk potency values are current as of 2005 OEHHA guidelines
 -- Chronic and Acute HI values summed across all target organs, and are conservative.
 -- The closer of a resident or sensitive receptor was selected

BRADLEY MRF

Cancer Potency (mg-(kg-day) ⁻¹)	Resident Cancer MPF	Worker Cancer MPF	Chronic Inhalation REL (ug/m3)	Resident Chronic MPF	Worker Chronic MPF	Acute REL (ug/m3)	Acute REL Ave Time (hrs)	Acute Adjust Factor
1.1	1	1	5.00E+00	1	1	n/a	n/a	n/a

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Refuse Trucks	80%	583	466	117	49	39	10
Transfer Trucks	80%	268	214	54	23	18	5

Action:
Annual Operation Hours (hr/yr): CEQA 3744

12 hr/day 6 day/wk

Fuel Type:

Diesel

Refuse Truck Fuel Use (gal/truck)	0.601												
Transfer Truck Fuel Use (gal/truck)	0.559												
Fuel Use Controlled Trucks (1000 gal/hr)	0.0335												
Fuel Use Standard Trucks (1000 gal/hr)	0.0088												
Fuel Use Controlled Trucks (1000 gal/yr)	124.7039												
Fuel Use Standard Trucks (1000 gal/yr)	31.3569												
Dispersion model used:	ISCST3												
Building Downwash?	NO												
Terrain conditions:	FLAT												

Exposure Information for adult resident and worker:

	Model Result	Scaling Adjustment	DBR r Breathing Rate (L/kg-dy)	DBR w Breathing Rate (L/kg-dy)	AF ann r Annual Adjustment Factor	AF ann w Annual Adjustment Factor	Resident EVF	Worker EVF	Acute Risk Adjustment Factor
Max. 1-Hr. X/Q:	460.496		302	149	1	2.30	0.96	0.38	0.500
Resident 1-hr X/Q:	99.28	230.248 372849E; 3789029 N							
Worker 1-hr X/Q:	460.496	49.640 372170E; 3789300 N							
Sensitive 1-hr X/Q:	41.58	230.248 372849E; 3789029 N							
Max. Annual X/Q:	7.993	20.790 371616E; 3789579 N							
Resident Annual X/Q:	2.02	7.993 372849E; 3789029 N							
Worker Annual X/Q:	7.993	2.02 372170E; 3789300 N							
Sensitive Annual X/Q:	0.55	7.993 372849E; 3789029 N							
		0.55 371616E; 3789579 N							

BRADLEY MRF

Substance	Uncontrolled Emission Factor (lb/1000 gal)	Control	Controlled Emission Factor (lb/1000 gal)	Emission Rates			Max. 1-Hour Conc. (ug/m3)	Resident Annual Conc. (ug/m3)	Worker Annual Conc. (ug/m3)	Resident Inhalation Dose (mg-(kg-day) ⁻¹)	Worker Inhalation Dose (mg-(kg-day) ⁻¹)
				Hourly		Annual					
				(lb/ft ³)	(g/sec)	(lb/yr)					
DIESEL EMISSIONS SPECIATED											
Acetaldehyde	0.7833	85%	0.1175	1.08E-02	1.36E-03	3.92E+01	5.64E-04	3.14E-01	1.14E-03	4.51E-03	3.30E-07
Acrolein	0.0339	85%	0.0051	4.69E-04	5.91E-05	1.70E+00	2.44E-05	1.36E-02	4.93E-05	1.95E-04	1.43E-08
Arsenic	0.0016	85%	0.0002	2.21E-05	2.79E-06	8.01E-02	1.15E-06	6.42E-04	2.33E-06	9.21E-06	6.75E-10
Benzene	0.1863	85%	0.0279	2.58E-03	3.23E-04	9.33E+00	1.34E-04	7.47E-02	2.71E-04	1.07E-03	7.86E-08
Beryllium	ND	85%	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	0.2174	85%	0.0326	3.01E-03	3.79E-04	1.09E+01	1.57E-04	8.72E-02	3.16E-04	1.23E-03	9.17E-08
Cadmium	0.0015	85%	0.0002	2.07E-05	2.61E-06	7.51E-02	1.08E-06	6.02E-04	2.18E-06	8.63E-06	1.12E-09
Chlorobenzene	0.0002	85%	0.0000	2.77E-06	3.49E-07	1.00E-02	1.44E-07	8.02E-05	2.91E-07	1.15E-06	8.43E-11
Cr VI	0.0001	85%	0.0000	1.38E-06	1.74E-07	5.01E-03	7.20E-08	4.01E-05	1.45E-07	5.76E-07	4.22E-11
Chromium (not VI)	0.0006	85%	0.0001	8.30E-06	1.05E-06	3.00E-02	4.32E-07	2.41E-04	8.73E-07	3.45E-06	2.53E-10
Copper	0.0041	85%	0.0006	5.67E-05	7.14E-06	2.03E-01	2.95E-06	1.65E-03	5.96E-06	2.36E-05	1.73E-09
Dioxins	ND	85%	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	0.0109	85%	0.0016	1.51E-04	1.90E-05	5.46E-01	7.85E-06	4.37E-03	1.59E-05	6.27E-05	4.60E-09
Formaldehyde	1.7261	85%	0.2589	2.39E-02	3.01E-03	8.64E+01	1.24E-03	6.93E-01	2.51E-03	9.93E-03	7.28E-07
Furans	ND	85%	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	0.0269	85%	0.0040	3.72E-04	4.69E-05	1.35E+00	1.94E-05	1.08E-02	3.91E-05	1.55E-04	1.13E-08
Hydrogen Chloride	0.1863	85%	0.0279	2.58E-03	3.23E-04	9.33E+00	1.34E-04	7.47E-02	2.71E-04	1.07E-03	7.86E-08
Lead	0.0083	85%	0.0012	1.15E-04	1.45E-05	4.16E-01	5.98E-06	3.33E-03	1.21E-05	4.78E-05	3.50E-09
Manganese	0.0031	85%	0.0005	4.29E-05	5.40E-06	1.55E-01	2.23E-06	1.24E-03	4.51E-06	1.78E-05	1.31E-09
Mercury	0.0020	85%	0.0003	2.77E-05	3.49E-06	1.00E-01	1.44E-06	8.02E-04	2.91E-06	1.15E-05	8.43E-10
Naphthalene	0.0197	85%	0.0030	2.72E-04	3.43E-05	9.86E-01	1.42E-05	7.90E-03	2.87E-05	1.13E-04	8.31E-09
Nickel	0.0039	85%	0.0006	5.39E-05	6.80E-06	1.95E-01	2.81E-06	1.56E-03	5.67E-06	2.24E-05	1.64E-09
PAHs (less naphthalene)	0.0362	85%	0.0054	5.01E-04	6.31E-05	1.81E+00	2.61E-05	1.45E-02	5.27E-05	2.08E-04	1.53E-08
Propylene	0.4670	85%	0.0701	6.46E-03	8.14E-04	2.34E+01	3.36E-04	1.87E-01	6.79E-04	2.69E-03	1.97E-07
Selenium	0.0022	85%	0.0003	3.04E-05	3.83E-06	1.10E-01	1.58E-06	8.83E-04	3.20E-06	1.27E-05	9.28E-10
Toluene	0.1054	85%	0.0158	1.46E-03	1.84E-04	5.28E+00	7.59E-05	4.23E-02	1.53E-04	6.07E-04	4.44E-08
Xylenes	0.0424	85%	0.0064	5.86E-04	7.39E-05	2.12E+00	3.05E-05	1.70E-02	6.17E-05	2.44E-04	1.79E-08
Zinc	0.0224	85%	0.0034	3.10E-04	3.90E-05	1.12E+00	1.61E-05	8.99E-03	3.26E-05	1.29E-04	9.45E-09

Substance	MAX OFFSITE			RESIDENT			SENSITIVE			WORKER		
	Acute HI	Cancer Risk	Chronic HI	Acute HI	Cancer Risk	Chronic HI	Acute HI	Cancer Risk	Chronic HI	Acute HI	Cancer Risk	Chronic HI
DIESEL EMISSIONS SPECIATED												
Acetaldehyde	n/a	3E-09	1.27E-04	n/a	8.99E-10	3.45E-05	n/a	5.87E-09	n/a	n/a	5.01E-04	
Acrolein	7.16E-02	n/a	8.22E-04	1.54E-02	n/a	2.24E-04	6.46E-03	n/a	7.16E-02	n/a	3.25E-03	
Arsenic	3.24E-03	4E-08	1.48E-04	6.99E-04	1.05E-08	4.03E-05	2.93E-04	6.58E-08	3.24E-03	5.86E-04		
Benzene	5.06E-05	8E-09	4.52E-06	1.09E-05	2.14E-09	1.23E-06	4.57E-06	1.40E-08	5.06E-05	1.79E-05		
Beryllium	n/a	0E+00	0.00E+00	n/a	0.00E+00	0.00E+00	n/a	0.00E+00	n/a	0.00E+00		
1,3-Butadiene	n/a	6E-08	1.58E-05	n/a	1.50E-08	4.30E-06	n/a	9.78E-08	n/a	6.26E-05		
Cadmium	n/a	9E-09	1.64E-04	n/a	2.58E-09	4.46E-05	n/a	1.69E-08	n/a	6.47E-04		
Chlorobenzene	n/a	n/a	2.91E-10	n/a	n/a	7.92E-11	n/a	n/a	n/a	1.15E-09		
CrVI	n/a	2E-08	7.27E-07	n/a	5.86E-09	1.98E-07	n/a	3.82E-08	n/a	2.88E-06		
Chromium (not VI)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Copper	1.65E-05	n/a	0.00E+00	3.55E-06	n/a	0.00E+00	1.49E-06	n/a	1.65E-05	n/a		
Dioxins	n/a	0E+00	0.00E+00	n/a	0.00E+00	0.00E+00	n/a	0.00E+00	n/a	0.00E+00		
Ethylbenzene	n/a	n/a	7.93E-09	n/a	n/a	2.16E-09	n/a	n/a	n/a	3.14E-08		
Formaldehyde	7.37E-03	2E-08	8.37E-04	1.59E-03	4.16E-09	2.28E-04	6.65E-04	2.72E-08	7.37E-03	3.31E-03		
Furans	n/a	0E+00	0.00E+00	n/a	0.00E+00	0.00E+00	n/a	0.00E+00	n/a	0.00E+00		
Hexane	n/a	n/a	5.59E-09	n/a	n/a	1.52E-09	n/a	n/a	n/a	2.21E-08		
Hydrogen Chloride	3.56E-05	n/a	3.01E-05	7.67E-06	n/a	8.20E-06	3.21E-06	n/a	3.56E-05	1.19E-04		
Lead	n/a	6E-10	n/a	n/a	1.68E-10	n/a	n/a	7.68E-10	n/a	n/a		
Manganese	n/a	n/a	2.25E-05	n/a	n/a	6.14E-06	n/a	n/a	n/a	8.92E-05		
Mercury	4.46E-04	n/a	3.25E-04	9.61E-05	n/a	8.85E-05	4.03E-05	n/a	4.46E-04	1.29E-03		
Naphthalene	n/a	1E-09	3.18E-06	n/a	2.71E-10	8.67E-07	n/a	1.77E-09	n/a	1.26E-05		
Nickel	2.61E-04	1E-09	1.13E-04	5.62E-05	4.07E-10	3.09E-05	2.35E-05	2.66E-09	2.61E-04	4.49E-04		
PAHs (less naphthalene)	n/a	2E-06	n/a	n/a	4.82E-07	n/a	n/a	1.55E-06	n/a	n/a		
Propylene	n/a	n/a	2.26E-07	n/a	n/a	6.16E-08	n/a	n/a	n/a	8.96E-07		
Selenium	n/a	n/a	1.60E-07	n/a	n/a	4.36E-08	n/a	n/a	n/a	6.33E-07		
Toluene	1.14E-06	n/a	5.11E-07	2.46E-07	n/a	1.39E-07	1.03E-07	n/a	1.14E-06	2.02E-06		
Xylenes	7.73E-07	n/a	8.81E-08	1.67E-07	n/a	2.40E-08	6.98E-08	n/a	7.73E-07	3.49E-07		
Zinc	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
SUM	0.083	1.93E-06	0.0026	0.018	5.74E-07	0.0007	0.007	1.87E-06	0.083	0.010		
Exceed Thresholds? (10 in one million risk for cancer, 1.0 for chronic and acute HI)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		

-- Ventura County APCD factors for IC engines used
 -- Risk potency values are current as of July 1, 2005 Rule 1401 guidelines
 -- Chronic and Acute HI values summed across all target organs, and are conservative
 -- The closer of a resident or sensitive receptor was selected

BRADLEY MRF

Cancer Potency (mg-(kg-day) ⁻¹)	Resident Cancer MPF	Worker Cancer MPF	Chronic Inhalation REL (ug/m3)	Resident Chronic MPF	Worker Chronic MPF	Acute REL (ug/m3)	Acute REL Ave Time (hrs)	Acute Adjust Factor
1.00E-02	1	1	9.00E+00	1	1	n/a	n/a	n/a
n/a	1	1	6.00E-02	1	1	1.90E-01	1	n/a
1.20E+01	4.78	4.57	3.00E-02	1.91	1.86	1.90E-01	4	0.96
1.00E-01	1	1	6.00E+01	1	1	1.30E+03	6	0.88
8.40E+00	1	1	7.00E+03	1	1	n/a	n/a	n/a
6.00E-01	1	1	2.00E+01	1	1	n/a	n/a	n/a
1.50E+01	1	1	2.00E-02	1.5	1.12	n/a	n/a	n/a
n/a	1	1	1.00E+03	1	1	n/a	n/a	n/a
5.10E+02	1	1	2.00E-01	1	1	n/a	n/a	n/a
n/a	1	1	n/a	1	1	n/a	n/a	n/a
n/a	1	1	n/a	1	1	1.00E+02	1	n/a
1.30E+05	9.78	6.28	4.00E-05	11.5	7.45	n/a	n/a	n/a
n/a	1	1	2.00E+03	1	1	n/a	n/a	n/a
2.10E-02	1	1	3.00E+00	1	1	9.40E+01	1	n/a
1.30E+05	9.78	6.28	4.00E-05	11.5	7.45	n/a	n/a	n/a
n/a	1	1	7.00E+03	1	1	n/a	n/a	n/a
n/a	1	1	9.00E+00	1	1	2.10E+03	1	n/a
4.20E-02	4.19	2.94	n/a	n/a	n/a	n/a	n/a	n/a
n/a	1	1	2.00E-01	1	1	n/a	n/a	n/a
n/a	1	1	9.00E-02	10.06	6.18	1.80E+00	1	n/a
1.20E-01	1	1	9.00E+00	1	1	n/a	n/a	n/a
9.10E-01	1	1	5.00E-02	1	1	6.00E+00	1	n/a
3.90E+00	29.76	14.62	n/a	1	1	n/a	n/a	n/a
n/a	1	1	3.00E+03	1	1	n/a	n/a	n/a
n/a	1	1	2.00E+01	1	1	n/a	n/a	n/a
n/a	1	1	3.00E+02	1	1	3.70E+04	1	n/a
n/a	1	1	7.00E+02	1	1	2.20E+04	1	n/a
n/a	1	1	n/a	1	1	n/a	n/a	n/a

BRADLEY MRF

Bradley Landfill
Rule 1401 Health Risk Assessment

Substance	MAX WORKER CHRONIC									
	CV/ BL	CNS/ PNS	ENDO	EYE	IMMUN	KIDN	ALIMEN GI/LV	REPR	RESP	SKIN
DIESEL EMISSIONS SPECIATED										
Acetaldehyde									5.01E-04	
Acrolein				3.25E-03					3.25E-03	
Arsenic	5.86E-04	5.86E-04						5.86E-04		
Benzene	1.79E-05	1.79E-05						1.79E-05		
Beryllium					0.00E+00				0.00E+00	
1,3-Butadiene								6.26E-05		
Cadmium						6.47E-04			6.47E-04	
Chlorobenzene						1.15E-09	1.15E-09	1.15E-09		
CrVI									2.88E-06	
Chromium (not VI)										
Copper										
Dioxins										
Ethylbenzene			3.14E-08					3.14E-08		
Formaldehyde				3.31E-03					3.31E-03	
Furans										
Hexane			2.21E-08							
Hydrogen Chloride									1.19E-04	
Lead										
Manganese		8.92E-05								
Mercury		1.29E-03								
Naphthalene									1.26E-05	
Nickel		4.49E-04							4.49E-04	
PAHs (less naphthalene)										
Propylene									8.96E-07	
Selenium		6.33E-07					6.33E-07			
Toluene								2.02E-06	2.02E-06	
Xylenes									3.49E-07	
Zinc										
SUM	0.001	0.002	0.000	0.007	0.000	0.001	0.000	0.001	0.008	0.000
Exceed Thresholds?? (1.0 for chronic HI)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Bradley MRF Emissions

Source	Description	Time min	Fuel gal/hr/truck	Fuel gal/truck	Trucks trucks/day	Fuel gal/day	Emissions %	Nominal Emissions g/s
GateA	Gate 1A	2.5	1	0.04167	583	24.29	4.9%	0.04855
Road01	Road - 150 m	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road02	Road - 300 m	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road03	Road - 450 m	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road04	Road - 600 m	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road05	Road - 750 m	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road06	Road - 900 m	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road07	Road - Exit	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Road08	Road - Exit	0.5625	6.57	0.06159	851	52.42	10.5%	0.10476
Subtotal - Road		4.5						
Face01	Face01	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face02	Face02	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face03	Face03	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face04	Face04	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face05	Face05	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face06	Face06	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face07	Face07	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face08	Face08	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face09	Face09	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face10	Face10	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face11	Face11	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face12	Face12	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face13	Face13	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face14	Face14	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face15	Face15	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face16	Face16	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face17	Face17	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face18	Face18	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face19	Face19	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face20	Face20	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face21	Face21	0.182	1	0.00303	851	2.58	0.5%	0.00515
Face22	Face22	0.182	1	0.00303	851	2.58	0.5%	0.00515
Subtotal - MRF		4.0						
Total		11.0		0.60108		500.36	100%	1.00000

Type	Max Trips/Hr				
	1 hr/day	2.5 min/entry	3 truck/entry	60 min/hr	72 truck/hr
Refuse	583	80%	466	117	85%
Transfer	268	80%	214	54	85%
Total	851	80%	680	171	

Trucks	Vehicles trip/day	Vehicles trip/hr	Idle min/trip	50% Load min/trip	Idle gal/hr	50% Load gal/hr	Actual Fuel Use gal/day	Operatin Days day/yr	Annual Fuel Use gal/yr	Average Fuel Use gal/hr	Maximum Fuel Use gal/hr
Refuse	583	49	6.5	4.5	1.00	6.57	350.4	313	109,685	12.52	29.5
Transfer	268	23	4	4.5	1.00	6.57	149.9	313	46,926	5.36	12.9
Total	851	72					500.36		156,611	17.88	42.32

Engine Specifications (Similar Engine - Volvo TAD722GE):

Hp	268	hp									
Fuel	0.337	lb/hp-hr	at 268 hp								
Fuel	0.337	lb/hp-hr	at 50% Load								
Fuel	0.387	lb/hp-hr	at 25% Load								
Intake	530	cfm	at 27C					at 100%			
Temp	494	C						at 100%			
Exhaust	1451	cfm						at 100%			
Diam	4	inch						at 100%			
Velocity	13059	ft/min	66.34	m/s				at 100%			

Conditions while Idling/Operating:

Hp	137.5	hp	at 50% of 275 hp					at 50%			
Fuel	0.337	lb/hp-hr	6.57	gal/hr				at 50%			
Intake	271.9	cfm	at 27C					at 50%			
Temp	200	C	473	K				at 50%			
Exhaust	459	cfm						at 50%			
Diam	4	inch	0.102	m				at 50%			
Velocity	4132	ft/min	20.99	m/s				at 50%			
Plume Ht	4.79	m	at 7.5 m	6.73				m	at 25 m		
Hp	20.93	hp						at idle			
Fuel	-	lb/hp-hr	1.00	gal/hr				at idle			
Intake	41.4	cfm	at 27C					at idle			
Temp	150	C	423	K				at idle			
Exhaust	69.9	cfm						at idle			
Diam	4	inch	0.102	m				at idle			
Velocity	629	ft/min	3.19	m/s				at idle			
Plume Ht	4.26	m	at 7.5 m	5.41				m	at 25 m		