

Summary Report

Landfill Name or Identifier: Claremorris Historical Landfill - Co.Kerry

Date: Thursday 27 February 2020

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^n \sum_{j=0.1}^1 kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH_4} = annual methane generation in the year of the calculation ($m^3/year$)

i = 1-year time increment

n = (year of the calculation) - (initial year of waste acceptance)

j = 0.1-year time increment

k = methane generation rate ($year^{-1}$)

L_o = potential methane generation capacity (m^3/Mg)

M_i = mass of waste accepted in the i^{th} year (Mg)

t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (decimal years, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at <http://www.epa.gov/ttnatw01/landfill/landflpg.html>.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for conventional landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	1982	
Landfill Closure Year (with 80-year limit)	1996	
Actual Closure Year (without limit)	1996	
Have Model Calculate Closure Year?	Yes	
Waste Design Capacity	168,000	<i>megagrams</i>

MODEL PARAMETERS

Methane Generation Rate, k	0.050	<i>year⁻¹</i>
Potential Methane Generation Capacity, L ₀	170	<i>m³/Mg</i>
NMOC Concentration	4,000	<i>ppmv as hexane</i>
Methane Content	50	<i>% by volume</i>

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	Total landfill gas
Gas / Pollutant #2:	Methane
Gas / Pollutant #3:	Carbon dioxide
Gas / Pollutant #4:	NMOC

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-in-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
1982	11,200	12,320	0	0
1983	11,200	12,320	11,200	12,320
1984	11,200	12,320	22,400	24,640
1985	11,200	12,320	33,600	36,960
1986	11,200	12,320	44,800	49,280
1987	11,200	12,320	56,000	61,600
1988	11,200	12,320	67,200	73,920
1989	11,200	12,320	78,400	86,240
1990	11,200	12,320	89,600	98,560
1991	11,200	12,320	100,800	110,880
1992	11,200	12,320	112,000	123,200
1993	11,200	12,320	123,200	135,520
1994	11,200	12,320	134,400	147,840
1995	11,200	12,320	145,600	160,160
1996	11,200	12,320	156,800	172,480
1997	0	0	168,000	184,800
1998	0	0	168,000	184,800
1999	0	0	168,000	184,800
2000	0	0	168,000	184,800
2001	0	0	168,000	184,800
2002	0	0	168,000	184,800
2003	0	0	168,000	184,800
2004	0	0	168,000	184,800
2005	0	0	168,000	184,800
2006	0	0	168,000	184,800
2007	0	0	168,000	184,800
2008	0	0	168,000	184,800
2009	0	0	168,000	184,800
2010	0	0	168,000	184,800
2011	0	0	168,000	184,800
2012	0	0	168,000	184,800
2013	0	0	168,000	184,800
2014	0	0	168,000	184,800
2015	0	0	168,000	184,800
2016	0	0	168,000	184,800
2017	0	0	168,000	184,800
2018	0	0	168,000	184,800
2019	0	0	168,000	184,800
2020	0	0	168,000	184,800
2021	0	0	168,000	184,800

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2022	0	0	168,000	184,800
2023	0	0	168,000	184,800
2024	0	0	168,000	184,800
2025	0	0	168,000	184,800
2026	0	0	168,000	184,800
2027	0	0	168,000	184,800
2028	0	0	168,000	184,800
2029	0	0	168,000	184,800
2030	0	0	168,000	184,800
2031	0	0	168,000	184,800
2032	0	0	168,000	184,800
2033	0	0	168,000	184,800
2034	0	0	168,000	184,800
2035	0	0	168,000	184,800
2036	0	0	168,000	184,800
2037	0	0	168,000	184,800
2038	0	0	168,000	184,800
2039	0	0	168,000	184,800
2040	0	0	168,000	184,800
2041	0	0	168,000	184,800
2042	0	0	168,000	184,800
2043	0	0	168,000	184,800
2044	0	0	168,000	184,800
2045	0	0	168,000	184,800
2046	0	0	168,000	184,800
2047	0	0	168,000	184,800
2048	0	0	168,000	184,800
2049	0	0	168,000	184,800
2050	0	0	168,000	184,800
2051	0	0	168,000	184,800
2052	0	0	168,000	184,800
2053	0	0	168,000	184,800
2054	0	0	168,000	184,800
2055	0	0	168,000	184,800
2056	0	0	168,000	184,800
2057	0	0	168,000	184,800
2058	0	0	168,000	184,800
2059	0	0	168,000	184,800
2060	0	0	168,000	184,800
2061	0	0	168,000	184,800

For inspection purposes only. Consent of copyright is required for any other use.

Pollutant Parameters

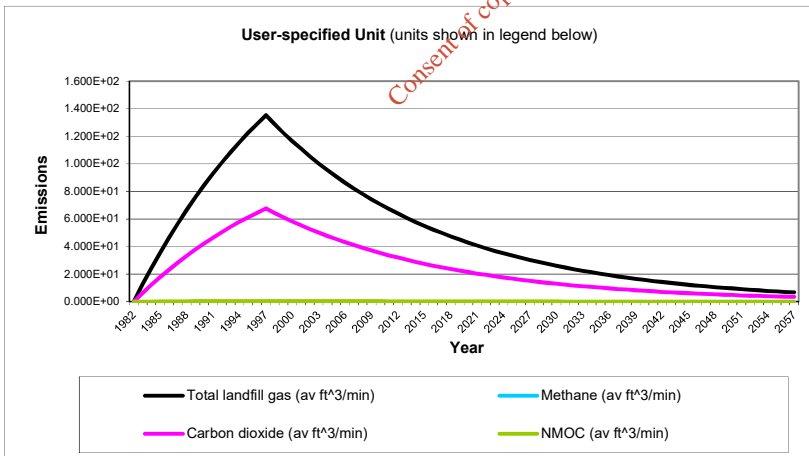
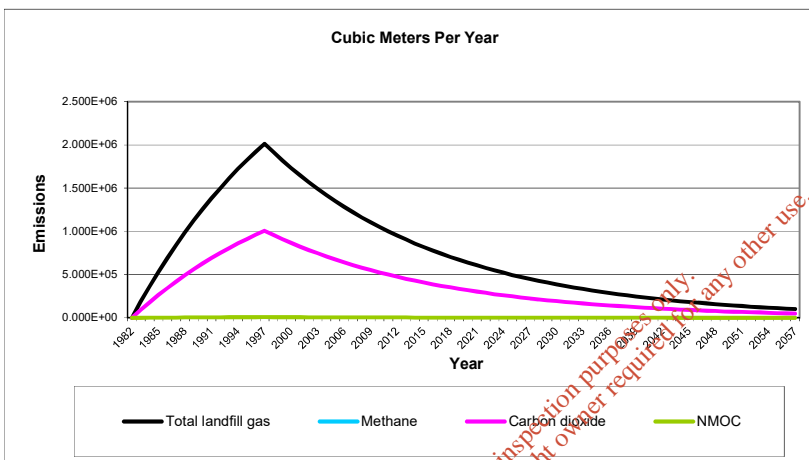
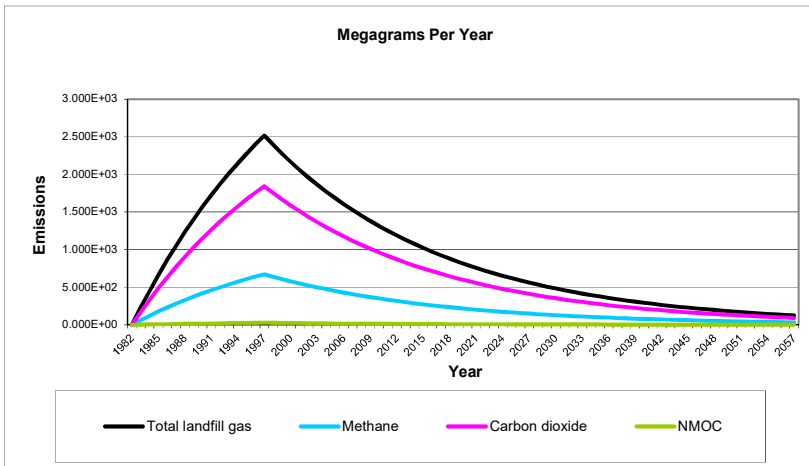
Gas / Pollutant Default Parameters:				User-specified Pollutant Parameters:	
	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

Gas / Pollutant Default Parameters:				User-specified Pollutant Parameters:	
	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

For information purposes only. Consent of copyright owner required for any other use.

Graphs



Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1982	0	0	0	0	0	0
1983	2.325E+02	1.862E+05	1.251E+01	6.211E+01	9.309E+04	6.255E+00
1984	4.537E+02	3.633E+05	2.441E+01	1.212E+02	1.816E+05	1.220E+01
1985	6.641E+02	5.318E+05	3.573E+01	1.774E+02	2.659E+05	1.786E+01
1986	8.642E+02	6.920E+05	4.650E+01	2.308E+02	3.460E+05	2.325E+01
1987	1.055E+03	8.444E+05	5.674E+01	2.817E+02	4.222E+05	2.837E+01
1988	1.236E+03	9.894E+05	6.648E+01	3.300E+02	4.947E+05	3.324E+01
1989	1.408E+03	1.127E+06	7.575E+01	3.761E+02	5.637E+05	3.787E+01
1990	1.572E+03	1.259E+06	8.456E+01	4.198E+02	6.293E+05	4.228E+01
1991	1.728E+03	1.383E+06	9.295E+01	4.615E+02	6.917E+05	4.647E+01
1992	1.876E+03	1.502E+06	1.009E+02	5.011E+02	7.510E+05	5.046E+01
1993	2.017E+03	1.615E+06	1.085E+02	5.387E+02	8.075E+05	5.426E+01
1994	2.151E+03	1.722E+06	1.157E+02	5.746E+02	8.612E+05	5.428E+01
1995	2.279E+03	1.825E+06	1.226E+02	6.086E+02	9.123E+05	6.130E+01
1996	2.400E+03	1.922E+06	1.291E+02	6.411E+02	9.609E+05	6.456E+01
1997	2.515E+03	2.014E+06	1.353E+02	6.719E+02	1.007E+06	6.767E+01
1998	2.393E+03	1.916E+06	1.287E+02	6.391E+02	9.580E+05	6.397E+01
1999	2.276E+03	1.823E+06	1.225E+02	6.080E+02	9.113E+05	6.123E+01
2000	2.165E+03	1.734E+06	1.165E+02	5.783E+02	8.668E+05	5.824E+01
2001	2.059E+03	1.649E+06	1.108E+02	5.501E+02	8.246E+05	5.540E+01
2002	1.959E+03	1.569E+06	1.054E+02	5.233E+02	7.844E+05	5.270E+01
2003	1.863E+03	1.492E+06	1.003E+02	4.978E+02	7.461E+05	5.013E+01
2004	1.773E+03	1.419E+06	9.537E+01	4.735E+02	7.097E+05	4.769E+01
2005	1.686E+03	1.350E+06	9.072E+01	4.504E+02	6.751E+05	4.536E+01
2006	1.604E+03	1.284E+06	8.630E+01	4.284E+02	6.422E+05	4.315E+01
2007	1.526E+03	1.222E+06	8.209E+01	4.075E+02	6.109E+05	4.104E+01
2008	1.451E+03	1.162E+06	7.808E+01	3.877E+02	5.811E+05	3.904E+01
2009	1.381E+03	1.105E+06	7.427E+01	3.687E+02	5.527E+05	3.714E+01
2010	1.313E+03	1.052E+06	7.065E+01	3.508E+02	5.258E+05	3.533E+01
2011	1.249E+03	1.000E+06	6.721E+01	3.337E+02	5.001E+05	3.360E+01
2012	1.188E+03	9.515E+05	6.393E+01	3.174E+02	4.757E+05	3.196E+01
2013	1.130E+03	9.051E+05	6.081E+01	3.019E+02	4.525E+05	3.041E+01
2014	1.075E+03	8.609E+05	5.785E+01	2.872E+02	4.305E+05	2.892E+01
2015	1.023E+03	8.189E+05	5.502E+01	2.732E+02	4.095E+05	2.751E+01
2016	9.728E+02	7.790E+05	5.234E+01	2.599E+02	3.895E+05	2.617E+01
2017	9.254E+02	7.410E+05	4.979E+01	2.472E+02	3.705E+05	2.489E+01
2018	8.803E+02	7.049E+05	4.736E+01	2.351E+02	3.524E+05	2.368E+01
2019	8.373E+02	6.705E+05	4.505E+01	2.237E+02	3.352E+05	2.252E+01
2020	7.965E+02	6.378E+05	4.285E+01	2.127E+02	3.189E+05	2.143E+01
2021	7.576E+02	6.067E+05	4.076E+01	2.024E+02	3.033E+05	2.038E+01
2022	7.207E+02	5.771E+05	3.877E+01	1.925E+02	2.885E+05	1.939E+01
2023	6.855E+02	5.489E+05	3.688E+01	1.831E+02	2.745E+05	1.844E+01
2024	6.521E+02	5.222E+05	3.508E+01	1.742E+02	2.611E+05	1.754E+01
2025	6.203E+02	4.967E+05	3.337E+01	1.657E+02	2.484E+05	1.669E+01
2026	5.900E+02	4.725E+05	3.175E+01	1.576E+02	2.362E+05	1.587E+01
2027	5.613E+02	4.494E+05	3.020E+01	1.499E+02	2.247E+05	1.510E+01
2028	5.339E+02	4.275E+05	2.873E+01	1.426E+02	2.138E+05	1.436E+01
2029	5.079E+02	4.067E+05	2.732E+01	1.357E+02	2.033E+05	1.366E+01
2030	4.831E+02	3.868E+05	2.599E+01	1.290E+02	1.934E+05	1.300E+01
2031	4.595E+02	3.680E+05	2.472E+01	1.227E+02	1.840E+05	1.236E+01

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2032	4.371E+02	3.500E+05	2.352E+01	1.168E+02	1.750E+05	1.176E+01
2033	4.158E+02	3.330E+05	2.237E+01	1.111E+02	1.665E+05	1.119E+01
2034	3.955E+02	3.167E+05	2.128E+01	1.056E+02	1.584E+05	1.064E+01
2035	3.762E+02	3.013E+05	2.024E+01	1.005E+02	1.506E+05	1.012E+01
2036	3.579E+02	2.866E+05	1.926E+01	9.559E+01	1.433E+05	9.628E+00
2037	3.404E+02	2.726E+05	1.832E+01	9.093E+01	1.363E+05	9.158E+00
2038	3.238E+02	2.593E+05	1.742E+01	8.650E+01	1.297E+05	8.711E+00
2039	3.080E+02	2.467E+05	1.657E+01	8.228E+01	1.233E+05	8.286E+00
2040	2.930E+02	2.346E+05	1.576E+01	7.827E+01	1.173E+05	7.882E+00
2041	2.787E+02	2.232E+05	1.500E+01	7.445E+01	1.116E+05	7.498E+00
2042	2.651E+02	2.123E+05	1.426E+01	7.082E+01	1.062E+05	7.132E+00
2043	2.522E+02	2.019E+05	1.357E+01	6.736E+01	1.010E+05	6.784E+00
2044	2.399E+02	1.921E+05	1.291E+01	6.408E+01	9.605E+04	6.654E+00
2045	2.282E+02	1.827E+05	1.228E+01	6.095E+01	9.136E+04	6.139E+00
2046	2.171E+02	1.738E+05	1.168E+01	5.798E+01	8.691E+04	5.839E+00
2047	2.065E+02	1.653E+05	1.111E+01	5.515E+01	8.267E+04	5.555E+00
2048	1.964E+02	1.573E+05	1.057E+01	5.246E+01	7.864E+04	5.284E+00
2049	1.868E+02	1.496E+05	1.005E+01	4.990E+01	7.480E+04	5.026E+00
2050	1.777E+02	1.423E+05	9.562E+00	4.747E+01	7.115E+04	4.781E+00
2051	1.691E+02	1.354E+05	9.095E+00	4.516E+01	6.768E+04	4.548E+00
2052	1.608E+02	1.288E+05	8.652E+00	4.295E+01	6.438E+04	4.326E+00
2053	1.530E+02	1.225E+05	8.230E+00	4.086E+01	6.124E+04	4.115E+00
2054	1.455E+02	1.165E+05	7.829E+00	3.887E+01	5.826E+04	3.914E+00
2055	1.384E+02	1.108E+05	7.447E+00	3.697E+01	5.542E+04	3.723E+00
2056	1.317E+02	1.054E+05	7.084E+00	3.517E+01	5.271E+04	3.542E+00
2057	1.252E+02	1.003E+05	6.738E+00	3.345E+01	5.014E+04	3.369E+00
2058	1.191E+02	9.539E+04	6.409E+00	3.182E+01	4.770E+04	3.205E+00
2059	1.133E+02	9.074E+04	6.097E+00	3.027E+01	4.537E+04	3.048E+00
2060	1.078E+02	8.632E+04	5.800E+00	2.879E+01	4.316E+04	2.900E+00
2061	1.025E+02	8.211E+04	5.517E+00	2.739E+01	4.105E+04	2.758E+00
2062	9.753E+01	7.810E+04	5.248E+00	2.605E+01	3.905E+04	2.624E+00
2063	9.278E+01	7.429E+04	4.992E+00	2.478E+01	3.715E+04	2.496E+00
2064	8.825E+01	7.067E+04	4.748E+00	2.357E+01	3.533E+04	2.374E+00
2065	8.395E+01	6.722E+04	4.517E+00	2.242E+01	3.361E+04	2.258E+00
2066	7.985E+01	6.394E+04	4.296E+00	2.133E+01	3.197E+04	2.148E+00
2067	7.596E+01	6.083E+04	4.087E+00	2.029E+01	3.041E+04	2.043E+00
2068	7.226E+01	5.786E+04	3.888E+00	1.930E+01	2.893E+04	1.944E+00
2069	6.873E+01	5.504E+04	3.696E+00	1.836E+01	2.752E+04	1.849E+00
2070	6.538E+01	5.235E+04	3.518E+00	1.746E+01	2.618E+04	1.759E+00
2071	6.219E+01	4.980E+04	3.346E+00	1.661E+01	2.490E+04	1.673E+00
2072	5.916E+01	4.737E+04	3.183E+00	1.580E+01	2.369E+04	1.591E+00
2073	5.627E+01	4.506E+04	3.028E+00	1.503E+01	2.253E+04	1.514E+00
2074	5.353E+01	4.286E+04	2.880E+00	1.430E+01	2.143E+04	1.440E+00
2075	5.092E+01	4.077E+04	2.739E+00	1.360E+01	2.039E+04	1.370E+00
2076	4.843E+01	3.878E+04	2.606E+00	1.294E+01	1.939E+04	1.303E+00
2077	4.607E+01	3.689E+04	2.479E+00	1.231E+01	1.845E+04	1.239E+00
2078	4.383E+01	3.509E+04	2.358E+00	1.171E+01	1.755E+04	1.179E+00
2079	4.169E+01	3.338E+04	2.243E+00	1.114E+01	1.669E+04	1.121E+00
2080	3.965E+01	3.175E+04	2.134E+00	1.059E+01	1.588E+04	1.067E+00
2081	3.772E+01	3.020E+04	2.029E+00	1.008E+01	1.510E+04	1.015E+00
2082	3.588E+01	2.873E+04	1.930E+00	9.584E+00	1.437E+04	9.652E-01

For internal purposes only. Consent of EPA required for public use.

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2083	3.413E+01	2.733E+04	1.836E+00	9.117E+00	1.367E+04	9.182E-01
2084	3.247E+01	2.600E+04	1.747E+00	8.672E+00	1.300E+04	8.734E-01
2085	3.088E+01	2.473E+04	1.662E+00	8.249E+00	1.236E+04	8.308E-01
2086	2.938E+01	2.352E+04	1.581E+00	7.847E+00	1.176E+04	7.903E-01
2087	2.794E+01	2.238E+04	1.503E+00	7.464E+00	1.119E+04	7.517E-01
2088	2.658E+01	2.129E+04	1.430E+00	7.100E+00	1.064E+04	7.151E-01
2089	2.528E+01	2.025E+04	1.360E+00	6.754E+00	1.012E+04	6.802E-01
2090	2.405E+01	1.926E+04	1.294E+00	6.424E+00	9.630E+03	6.470E-01
2091	2.288E+01	1.832E+04	1.231E+00	6.111E+00	9.160E+03	6.155E-01
2092	2.176E+01	1.743E+04	1.171E+00	5.813E+00	8.713E+03	5.854E-01
2093	2.070E+01	1.658E+04	1.114E+00	5.530E+00	8.288E+03	5.569E-01
2094	1.969E+01	1.577E+04	1.059E+00	5.260E+00	7.884E+03	5.297E-01
2095	1.873E+01	1.500E+04	1.008E+00	5.003E+00	7.500E+03	5.039E-01
2096	1.782E+01	1.427E+04	9.587E-01	4.759E+00	7.134E+03	4.793E-01
2097	1.695E+01	1.357E+04	9.119E-01	4.527E+00	6.786E+03	4.559E-01
2098	1.612E+01	1.291E+04	8.674E-01	4.306E+00	6.455E+03	4.337E-01
2099	1.534E+01	1.228E+04	8.251E-01	4.096E+00	6.140E+03	4.126E-01
2100	1.459E+01	1.168E+04	7.849E-01	3.897E+00	5.841E+03	3.924E-01
2101	1.388E+01	1.111E+04	7.466E-01	3.707E+00	5.556E+03	3.733E-01
2102	1.320E+01	1.057E+04	7.102E-01	3.526E+00	5.285E+03	3.551E-01
2103	1.256E+01	1.005E+04	6.756E-01	3.354E+00	5.027E+03	3.378E-01
2104	1.194E+01	9.564E+03	6.426E-01	3.190E+00	4.782E+03	3.213E-01
2105	1.136E+01	9.098E+03	6.113E-01	3.035E+00	4.549E+03	3.056E-01
2106	1.081E+01	8.654E+03	5.815E-01	2.887E+00	4.327E+03	2.907E-01
2107	1.028E+01	8.232E+03	5.531E-01	2.746E+00	4.116E+03	2.765E-01
2108	9.779E+00	7.830E+03	5.261E-01	2.612E+00	3.915E+03	2.631E-01
2109	9.302E+00	7.448E+03	5.005E-01	2.485E+00	3.724E+03	2.502E-01
2110	8.848E+00	7.085E+03	4.761E-01	2.363E+00	3.543E+03	2.380E-01
2111	8.417E+00	6.740E+03	4.528E-01	2.248E+00	3.370E+03	2.264E-01
2112	8.006E+00	6.411E+03	4.307E-01	2.139E+00	3.205E+03	2.154E-01
2113	7.616E+00	6.098E+03	4.097E-01	2.034E+00	3.049E+03	2.049E-01
2114	7.244E+00	5.801E+03	3.898E-01	1.935E+00	2.900E+03	1.949E-01
2115	6.891E+00	5.518E+03	3.707E-01	1.841E+00	2.759E+03	1.854E-01
2116	6.555E+00	5.249E+03	3.527E-01	1.751E+00	2.624E+03	1.763E-01
2117	6.235E+00	4.993E+03	3.355E-01	1.665E+00	2.496E+03	1.677E-01
2118	5.931E+00	4.749E+03	3.191E-01	1.584E+00	2.375E+03	1.596E-01
2119	5.642E+00	4.518E+03	3.035E-01	1.507E+00	2.259E+03	1.518E-01
2120	5.367E+00	4.297E+03	2.887E-01	1.433E+00	2.149E+03	1.444E-01
2121	5.105E+00	4.088E+03	2.747E-01	1.364E+00	2.044E+03	1.373E-01
2122	4.856E+00	3.888E+03	2.613E-01	1.297E+00	1.944E+03	1.306E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1982	0	0	0	0	0	0
1983	1.704E+02	9.309E+04	6.255E+00	2.669E+00	7.447E+02	5.004E-02
1984	3.325E+02	1.816E+05	1.220E+01	5.209E+00	1.453E+03	9.764E-02
1985	4.867E+02	2.659E+05	1.786E+01	7.624E+00	2.127E+03	1.429E-01
1986	6.334E+02	3.460E+05	2.325E+01	9.922E+00	2.768E+03	1.860E-01
1987	7.729E+02	4.222E+05	2.837E+01	1.211E+01	3.378E+03	2.269E-01
1988	9.056E+02	4.947E+05	3.324E+01	1.419E+01	3.958E+03	2.659E-01
1989	1.032E+03	5.637E+05	3.787E+01	1.616E+01	4.509E+03	3.030E-01
1990	1.152E+03	6.293E+05	4.228E+01	1.805E+01	5.034E+03	3.383E-01
1991	1.266E+03	6.917E+05	4.647E+01	1.983E+01	5.533E+03	3.718E-01
1992	1.375E+03	7.510E+05	5.046E+01	2.154E+01	6.008E+03	4.037E-01
1993	1.478E+03	8.075E+05	5.426E+01	2.316E+01	6.460E+03	4.340E-01
1994	1.576E+03	8.612E+05	5.786E+01	2.470E+01	6.890E+03	4.629E-01
1995	1.670E+03	9.123E+05	6.130E+01	2.616E+01	7.298E+03	4.904E-01
1996	1.759E+03	9.609E+05	6.456E+01	2.755E+01	7.687E+03	5.165E-01
1997	1.844E+03	1.007E+06	6.767E+01	2.888E+01	8.057E+03	5.414E-01
1998	1.754E+03	9.580E+05	6.437E+01	2.747E+01	7.664E+03	5.149E-01
1999	1.668E+03	9.113E+05	6.123E+01	2.613E+01	7.290E+03	4.898E-01
2000	1.587E+03	8.668E+05	5.824E+01	2.486E+01	6.935E+03	4.659E-01
2001	1.509E+03	8.246E+05	5.540E+01	2.365E+01	6.597E+03	4.432E-01
2002	1.436E+03	7.844E+05	5.270E+01	2.249E+01	6.275E+03	4.216E-01
2003	1.366E+03	7.461E+05	5.013E+01	2.139E+01	5.969E+03	4.010E-01
2004	1.299E+03	7.097E+05	4.769E+01	2.035E+01	5.678E+03	3.815E-01
2005	1.236E+03	6.751E+05	4.536E+01	1.936E+01	5.401E+03	3.629E-01
2006	1.175E+03	6.422E+05	4.315E+01	1.841E+01	5.137E+03	3.452E-01
2007	1.118E+03	6.109E+05	4.104E+01	1.752E+01	4.887E+03	3.283E-01
2008	1.064E+03	5.811E+05	3.904E+01	1.666E+01	4.648E+03	3.123E-01
2009	1.012E+03	5.527E+05	3.714E+01	1.585E+01	4.422E+03	2.971E-01
2010	9.624E+02	5.258E+05	3.533E+01	1.508E+01	4.206E+03	2.826E-01
2011	9.155E+02	5.001E+05	3.360E+01	1.434E+01	4.001E+03	2.688E-01
2012	8.708E+02	4.757E+05	3.196E+01	1.364E+01	3.806E+03	2.557E-01
2013	8.284E+02	4.525E+05	3.041E+01	1.298E+01	3.620E+03	2.432E-01
2014	7.880E+02	4.305E+05	2.892E+01	1.234E+01	3.444E+03	2.314E-01
2015	7.495E+02	4.095E+05	2.751E+01	1.174E+01	3.276E+03	2.201E-01
2016	7.130E+02	3.895E+05	2.617E+01	1.117E+01	3.116E+03	2.094E-01
2017	6.782E+02	3.705E+05	2.489E+01	1.062E+01	2.964E+03	1.992E-01
2018	6.451E+02	3.524E+05	2.368E+01	1.011E+01	2.819E+03	1.894E-01
2019	6.137E+02	3.352E+05	2.252E+01	9.613E+00	2.682E+03	1.802E-01
2020	5.837E+02	3.189E+05	2.143E+01	9.145E+00	2.551E+03	1.714E-01
2021	5.553E+02	3.033E+05	2.038E+01	8.699E+00	2.427E+03	1.631E-01
2022	5.282E+02	2.885E+05	1.939E+01	8.274E+00	2.308E+03	1.551E-01
2023	5.024E+02	2.745E+05	1.844E+01	7.871E+00	2.196E+03	1.475E-01
2024	4.779E+02	2.611E+05	1.754E+01	7.487E+00	2.089E+03	1.403E-01
2025	4.546E+02	2.484E+05	1.669E+01	7.122E+00	1.987E+03	1.335E-01
2026	4.324E+02	2.362E+05	1.587E+01	6.774E+00	1.890E+03	1.270E-01
2027	4.114E+02	2.247E+05	1.510E+01	6.444E+00	1.798E+03	1.208E-01
2028	3.913E+02	2.138E+05	1.436E+01	6.130E+00	1.710E+03	1.149E-01
2029	3.722E+02	2.033E+05	1.366E+01	5.831E+00	1.627E+03	1.093E-01
2030	3.541E+02	1.934E+05	1.300E+01	5.546E+00	1.547E+03	1.040E-01
2031	3.368E+02	1.840E+05	1.236E+01	5.276E+00	1.472E+03	9.890E-02

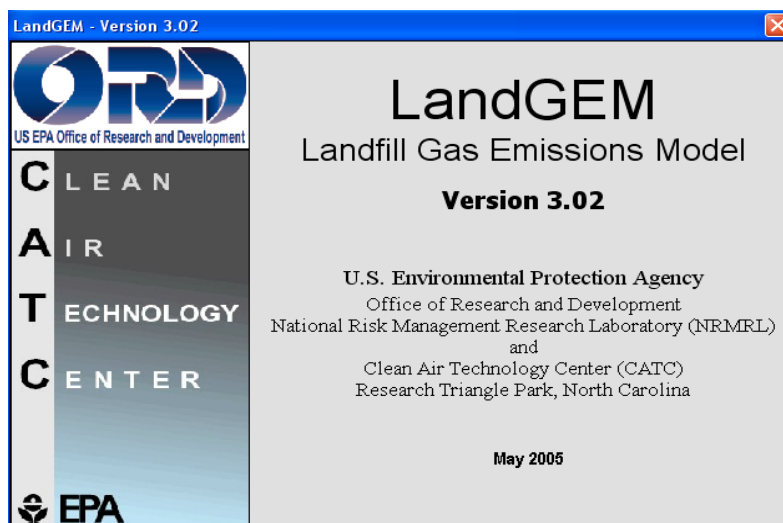
For internal purposes only
 Consent of EPA is required for public use.

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2032	3.204E+02	1.750E+05	1.176E+01	5.019E+00	1.400E+03	9.407E-02
2033	3.047E+02	1.665E+05	1.119E+01	4.774E+00	1.332E+03	8.948E-02
2034	2.899E+02	1.584E+05	1.064E+01	4.541E+00	1.267E+03	8.512E-02
2035	2.757E+02	1.506E+05	1.012E+01	4.320E+00	1.205E+03	8.097E-02
2036	2.623E+02	1.433E+05	9.628E+00	4.109E+00	1.146E+03	7.702E-02
2037	2.495E+02	1.363E+05	9.158E+00	3.909E+00	1.090E+03	7.326E-02
2038	2.373E+02	1.297E+05	8.711E+00	3.718E+00	1.037E+03	6.969E-02
2039	2.258E+02	1.233E+05	8.286E+00	3.537E+00	9.866E+02	6.629E-02
2040	2.147E+02	1.173E+05	7.882E+00	3.364E+00	9.385E+02	6.306E-02
2041	2.043E+02	1.116E+05	7.498E+00	3.200E+00	8.927E+02	5.998E-02
2042	1.943E+02	1.062E+05	7.132E+00	3.044E+00	8.492E+02	5.706E-02
2043	1.848E+02	1.010E+05	6.784E+00	2.895E+00	8.078E+02	5.428E-02
2044	1.758E+02	9.605E+04	6.454E+00	2.754E+00	7.684E+02	5.163E-02
2045	1.672E+02	9.136E+04	6.139E+00	2.620E+00	7.309E+02	4.911E-02
2046	1.591E+02	8.691E+04	5.839E+00	2.492E+00	6.953E+02	4.672E-02
2047	1.513E+02	8.267E+04	5.555E+00	2.371E+00	6.614E+02	4.444E-02
2048	1.439E+02	7.864E+04	5.284E+00	2.255E+00	6.291E+02	4.227E-02
2049	1.369E+02	7.480E+04	5.026E+00	2.145E+00	5.984E+02	4.021E-02
2050	1.302E+02	7.115E+04	4.781E+00	2.040E+00	5.692E+02	3.825E-02
2051	1.239E+02	6.768E+04	4.548E+00	1.941E+00	5.415E+02	3.638E-02
2052	1.179E+02	6.438E+04	4.326E+00	1.846E+00	5.151E+02	3.461E-02
2053	1.121E+02	6.124E+04	4.115E+00	1.756E+00	4.899E+02	3.292E-02
2054	1.066E+02	5.826E+04	3.914E+00	1.671E+00	4.661E+02	3.131E-02
2055	1.014E+02	5.542E+04	3.723E+00	1.589E+00	4.433E+02	2.979E-02
2056	9.649E+01	5.271E+04	3.542E+00	1.512E+00	4.217E+02	2.833E-02
2057	9.178E+01	5.014E+04	3.369E+00	1.438E+00	4.011E+02	2.695E-02
2058	8.731E+01	4.770E+04	3.205E+00	1.368E+00	3.816E+02	2.564E-02
2059	8.305E+01	4.537E+04	3.048E+00	1.301E+00	3.630E+02	2.439E-02
2060	7.900E+01	4.316E+04	2.900E+00	1.238E+00	3.453E+02	2.320E-02
2061	7.515E+01	4.105E+04	2.758E+00	1.177E+00	3.284E+02	2.207E-02
2062	7.148E+01	3.905E+04	2.624E+00	1.120E+00	3.124E+02	2.099E-02
2063	6.800E+01	3.715E+04	2.496E+00	1.065E+00	2.972E+02	1.997E-02
2064	6.468E+01	3.533E+04	2.374E+00	1.013E+00	2.827E+02	1.899E-02
2065	6.153E+01	3.361E+04	2.258E+00	9.638E-01	2.689E+02	1.807E-02
2066	5.852E+01	3.197E+04	2.148E+00	9.168E-01	2.558E+02	1.719E-02
2067	5.567E+01	3.041E+04	2.043E+00	8.721E-01	2.433E+02	1.635E-02
2068	5.296E+01	2.893E+04	1.944E+00	8.296E-01	2.314E+02	1.555E-02
2069	5.037E+01	2.752E+04	1.849E+00	7.891E-01	2.201E+02	1.479E-02
2070	4.792E+01	2.618E+04	1.759E+00	7.506E-01	2.094E+02	1.407E-02
2071	4.558E+01	2.490E+04	1.673E+00	7.140E-01	1.992E+02	1.338E-02
2072	4.336E+01	2.369E+04	1.591E+00	6.792E-01	1.895E+02	1.273E-02
2073	4.124E+01	2.253E+04	1.514E+00	6.461E-01	1.802E+02	1.211E-02
2074	3.923E+01	2.143E+04	1.440E+00	6.146E-01	1.715E+02	1.152E-02
2075	3.732E+01	2.039E+04	1.370E+00	5.846E-01	1.631E+02	1.096E-02
2076	3.550E+01	1.939E+04	1.303E+00	5.561E-01	1.551E+02	1.042E-02
2077	3.377E+01	1.845E+04	1.239E+00	5.290E-01	1.476E+02	9.915E-03
2078	3.212E+01	1.755E+04	1.179E+00	5.032E-01	1.404E+02	9.432E-03
2079	3.055E+01	1.669E+04	1.121E+00	4.786E-01	1.335E+02	8.972E-03
2080	2.906E+01	1.588E+04	1.067E+00	4.553E-01	1.270E+02	8.534E-03
2081	2.765E+01	1.510E+04	1.015E+00	4.331E-01	1.208E+02	8.118E-03
2082	2.630E+01	1.437E+04	9.652E-01	4.120E-01	1.149E+02	7.722E-03

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2083	2.501E+01	1.367E+04	9.182E-01	3.919E-01	1.093E+02	7.345E-03
2084	2.379E+01	1.300E+04	8.734E-01	3.728E-01	1.040E+02	6.987E-03
2085	2.263E+01	1.236E+04	8.308E-01	3.546E-01	9.892E+01	6.646E-03
2086	2.153E+01	1.176E+04	7.903E-01	3.373E-01	9.409E+01	6.322E-03
2087	2.048E+01	1.119E+04	7.517E-01	3.208E-01	8.951E+01	6.014E-03
2088	1.948E+01	1.064E+04	7.151E-01	3.052E-01	8.514E+01	5.721E-03
2089	1.853E+01	1.012E+04	6.802E-01	2.903E-01	8.099E+01	5.442E-03
2090	1.763E+01	9.630E+03	6.470E-01	2.761E-01	7.704E+01	5.176E-03
2091	1.677E+01	9.160E+03	6.155E-01	2.627E-01	7.328E+01	4.924E-03
2092	1.595E+01	8.713E+03	5.854E-01	2.499E-01	6.971E+01	4.684E-03
2093	1.517E+01	8.288E+03	5.569E-01	2.377E-01	6.631E+01	4.455E-03
2094	1.443E+01	7.884E+03	5.297E-01	2.261E-01	6.307E+01	4.238E-03
2095	1.373E+01	7.500E+03	5.039E-01	2.151E-01	6.000E+01	4.014E-03
2096	1.306E+01	7.134E+03	4.793E-01	2.046E-01	5.707E+01	3.835E-03
2097	1.242E+01	6.786E+03	4.559E-01	1.946E-01	5.429E+01	3.648E-03
2098	1.182E+01	6.455E+03	4.337E-01	1.851E-01	5.164E+01	3.470E-03
2099	1.124E+01	6.140E+03	4.126E-01	1.761E-01	4.912E+01	3.300E-03
2100	1.069E+01	5.841E+03	3.924E-01	1.675E-01	4.673E+01	3.140E-03
2101	1.017E+01	5.556E+03	3.733E-01	1.593E-01	4.445E+01	2.986E-03
2102	9.674E+00	5.285E+03	3.551E-01	1.515E-01	4.228E+01	2.841E-03
2103	9.202E+00	5.027E+03	3.378E-01	1.442E-01	4.022E+01	2.702E-03
2104	8.753E+00	4.782E+03	3.213E-01	1.371E-01	3.826E+01	2.570E-03
2105	8.327E+00	4.549E+03	3.056E-01	1.304E-01	3.639E+01	2.445E-03
2106	7.920E+00	4.327E+03	2.907E-01	1.241E-01	3.462E+01	2.326E-03
2107	7.534E+00	4.116E+03	2.765E-01	1.180E-01	3.293E+01	2.212E-03
2108	7.167E+00	3.915E+03	2.631E-01	1.123E-01	3.132E+01	2.104E-03
2109	6.817E+00	3.724E+03	2.502E-01	1.068E-01	2.979E+01	2.002E-03
2110	6.485E+00	3.543E+03	2.380E-01	1.016E-01	2.834E+01	1.904E-03
2111	6.168E+00	3.370E+03	2.264E-01	9.663E-02	2.696E+01	1.811E-03
2112	5.868E+00	3.205E+03	2.154E-01	9.192E-02	2.564E+01	1.723E-03
2113	5.581E+00	3.049E+03	2.049E-01	8.744E-02	2.439E+01	1.639E-03
2114	5.309E+00	2.900E+03	1.949E-01	8.317E-02	2.320E+01	1.559E-03
2115	5.050E+00	2.759E+03	1.854E-01	7.912E-02	2.207E+01	1.483E-03
2116	4.804E+00	2.624E+03	1.763E-01	7.526E-02	2.100E+01	1.411E-03
2117	4.570E+00	2.496E+03	1.677E-01	7.159E-02	1.997E+01	1.342E-03
2118	4.347E+00	2.375E+03	1.596E-01	6.810E-02	1.900E+01	1.276E-03
2119	4.135E+00	2.259E+03	1.518E-01	6.477E-02	1.807E+01	1.214E-03
2120	3.933E+00	2.149E+03	1.444E-01	6.162E-02	1.719E+01	1.155E-03
2121	3.741E+00	2.044E+03	1.373E-01	5.861E-02	1.635E+01	1.099E-03
2122	3.559E+00	1.944E+03	1.306E-01	5.575E-02	1.555E+01	1.045E-03



Summary Report

Landfill Name or Identifier: Claremorris Historical Landfill - Co.Kerry

Date: Tuesday 16 February 2021

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^n \sum_{j=0.1}^1 kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH_4} = annual methane generation in the year of the calculation ($m^3/year$)

i = 1-year time increment

n = (year of the calculation) - (initial year of waste acceptance)

j = 0.1-year time increment

k = methane generation rate ($year^{-1}$)

L_o = potential methane generation capacity (m^3/Mg)

M_i = mass of waste accepted in the i^{th} year (Mg)

t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year ($decimal\ years$, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at <http://www.epa.gov/ttnatw01/landfill/landflpg.html>.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for conventional landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year **1982**
 Landfill Closure Year (with 80-year limit) **1997**
 Actual Closure Year (without limit) **1997**
 Have Model Calculate Closure Year? **Yes**
 Waste Design Capacity **279,623** megagrams

MODEL PARAMETERS

Methane Generation Rate, k **0.050** year⁻¹
 Potential Methane Generation Capacity, L₀ **170** m³/Mg
 NMOC Concentration **4,000** ppmv as hexane
 Methane Content **50** % by volume

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1: **Total landfill gas**
 Gas / Pollutant #2: **Methane**
 Gas / Pollutant #3: **Carbon dioxide**
 Gas / Pollutant #4: **NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
1982	18,642	20,506	0	0
1983	18,642	20,506	18,642	20,506
1984	18,642	20,506	37,283	41,011
1985	18,642	20,506	55,925	61,517
1986	18,642	20,506	74,566	82,023
1987	18,642	20,506	93,208	102,528
1988	18,642	20,506	111,849	123,034
1989	18,642	20,506	130,491	143,540
1990	18,642	20,506	149,132	164,045
1991	18,642	20,506	167,774	184,551
1992	18,642	20,506	186,415	205,057
1993	18,642	20,506	205,057	225,563
1994	18,642	20,506	223,698	246,068
1995	18,642	20,506	242,340	266,574
1996	18,642	20,506	260,981	287,080
1997	0	0	279,623	307,585
1998	0	0	279,623	307,585
1999	0	0	279,623	307,585
2000	0	0	279,623	307,585
2001	0	0	279,623	307,585
2002	0	0	279,623	307,585
2003	0	0	279,623	307,585
2004	0	0	279,623	307,585
2005	0	0	279,623	307,585
2006	0	0	279,623	307,585
2007	0	0	279,623	307,585
2008	0	0	279,623	307,585
2009	0	0	279,623	307,585
2010	0	0	279,623	307,585
2011	0	0	279,623	307,585
2012	0	0	279,623	307,585
2013	0	0	279,623	307,585
2014	0	0	279,623	307,585
2015	0	0	279,623	307,585
2016	0	0	279,623	307,585
2017	0	0	279,623	307,585
2018	0	0	279,623	307,585
2019	0	0	279,623	307,585
2020	0	0	279,623	307,585
2021	0	0	279,623	307,585

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2022	0	0	279,623	307,585
2023	0	0	279,623	307,585
2024	0	0	279,623	307,585
2025	0	0	279,623	307,585
2026	0	0	279,623	307,585
2027	0	0	279,623	307,585
2028	0	0	279,623	307,585
2029	0	0	279,623	307,585
2030	0	0	279,623	307,585
2031	0	0	279,623	307,585
2032	0	0	279,623	307,585
2033	0	0	279,623	307,585
2034	0	0	279,623	307,585
2035	0	0	279,623	307,585
2036	0	0	279,623	307,585
2037	0	0	279,623	307,585
2038	0	0	279,623	307,585
2039	0	0	279,623	307,585
2040	0	0	279,623	307,585
2041	0	0	279,623	307,585
2042	0	0	279,623	307,585
2043	0	0	279,623	307,585
2044	0	0	279,623	307,585
2045	0	0	279,623	307,585
2046	0	0	279,623	307,585
2047	0	0	279,623	307,585
2048	0	0	279,623	307,585
2049	0	0	279,623	307,585
2050	0	0	279,623	307,585
2051	0	0	279,623	307,585
2052	0	0	279,623	307,585
2053	0	0	279,623	307,585
2054	0	0	279,623	307,585
2055	0	0	279,623	307,585
2056	0	0	279,623	307,585
2057	0	0	279,623	307,585
2058	0	0	279,623	307,585
2059	0	0	279,623	307,585
2060	0	0	279,623	307,585
2061	0	0	279,623	307,585

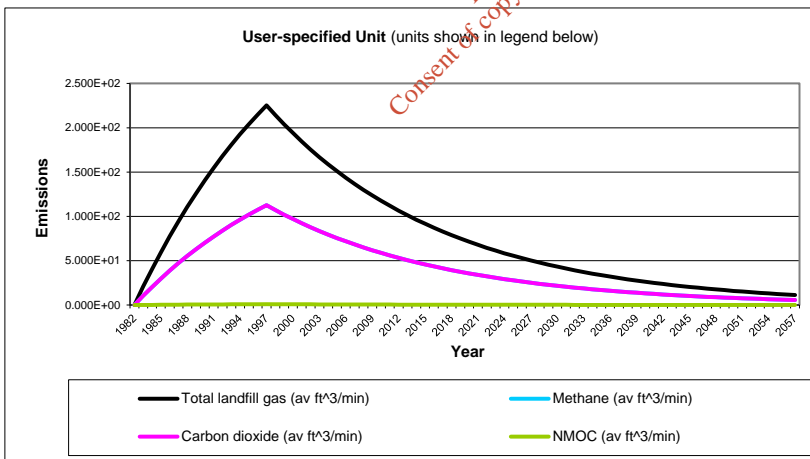
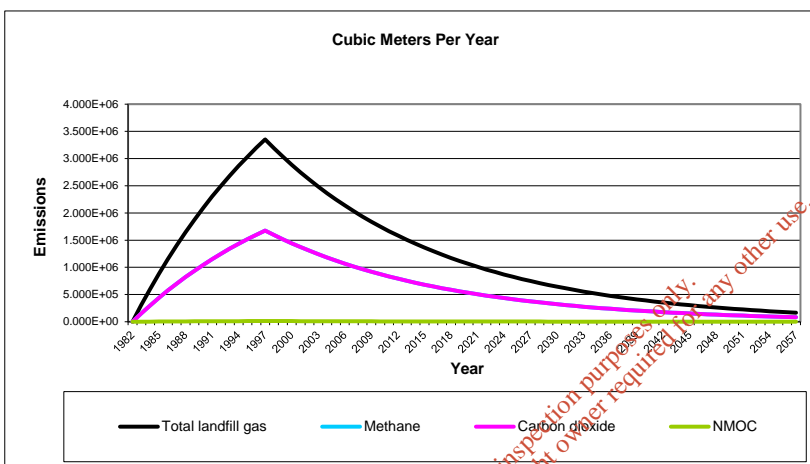
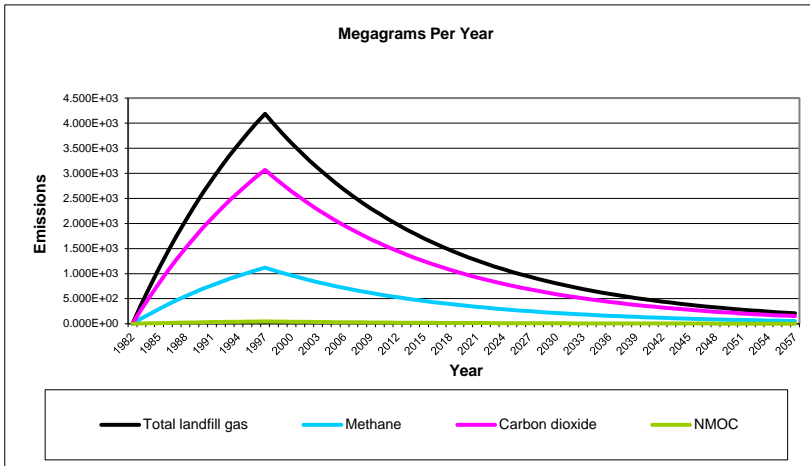
For inspection purposes only. Consent of copyright owner is required for any use.

Pollutant Parameters

Gas / Pollutant Default Parameters:				User-specified Pollutant Parameters:	
	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

For information purposes only. Consent of copyright owner required for any other use.

Graphs



For inspection purposes only. Consent of copyright owner required for any other use.

Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1982	0	0	0	0	0	0
1983	3.870E+02	3.099E+05	2.082E+01	1.034E+02	1.549E+05	1.041E+01
1984	7.551E+02	6.047E+05	4.063E+01	2.017E+02	3.023E+05	2.031E+01
1985	1.105E+03	8.851E+05	5.947E+01	2.952E+02	4.425E+05	2.973E+01
1986	1.438E+03	1.152E+06	7.739E+01	3.842E+02	5.759E+05	3.869E+01
1987	1.755E+03	1.405E+06	9.444E+01	4.688E+02	7.027E+05	4.722E+01
1988	2.057E+03	1.647E+06	1.107E+02	5.493E+02	8.234E+05	5.533E+01
1989	2.343E+03	1.876E+06	1.261E+02	6.259E+02	9.382E+05	6.304E+01
1990	2.616E+03	2.095E+06	1.407E+02	6.988E+02	1.047E+06	7.037E+01
1991	2.875E+03	2.303E+06	1.547E+02	7.681E+02	1.151E+06	7.735E+01
1992	3.122E+03	2.500E+06	1.680E+02	8.340E+02	1.250E+06	8.399E+01
1993	3.357E+03	2.688E+06	1.806E+02	8.967E+02	1.344E+06	9.030E+01
1994	3.580E+03	2.867E+06	1.926E+02	9.563E+02	1.433E+06	9.631E+01
1995	3.793E+03	3.037E+06	2.040E+02	1.013E+03	1.518E+06	1.020E+02
1996	3.995E+03	3.199E+06	2.149E+02	1.067E+03	1.599E+06	1.075E+02
1997	4.187E+03	3.353E+06	2.253E+02	1.118E+03	1.676E+06	1.126E+02
1998	3.983E+03	3.189E+06	2.143E+02	1.064E+03	1.595E+06	1.071E+02
1999	3.788E+03	3.034E+06	2.038E+02	1.012E+03	1.517E+06	1.019E+02
2000	3.604E+03	2.886E+06	1.939E+02	9.626E+02	1.443E+06	9.694E+01
2001	3.428E+03	2.745E+06	1.844E+02	9.156E+02	1.372E+06	9.221E+01
2002	3.261E+03	2.611E+06	1.754E+02	8.710E+02	1.305E+06	8.772E+01
2003	3.102E+03	2.484E+06	1.669E+02	8.285E+02	1.242E+06	8.344E+01
2004	2.950E+03	2.363E+06	1.587E+02	7.881E+02	1.181E+06	7.937E+01
2005	2.806E+03	2.247E+06	1.510E+02	7.496E+02	1.124E+06	7.550E+01
2006	2.670E+03	2.138E+06	1.436E+02	7.131E+02	1.069E+06	7.182E+01
2007	2.539E+03	2.033E+06	1.366E+02	6.783E+02	1.017E+06	6.831E+01
2008	2.416E+03	1.934E+06	1.300E+02	6.452E+02	9.671E+05	6.498E+01
2009	2.298E+03	1.840E+06	1.236E+02	6.138E+02	9.200E+05	6.181E+01
2010	2.186E+03	1.750E+06	1.176E+02	5.838E+02	8.751E+05	5.880E+01
2011	2.079E+03	1.665E+06	1.119E+02	5.553E+02	8.324E+05	5.593E+01
2012	1.978E+03	1.584E+06	1.064E+02	5.283E+02	7.918E+05	5.320E+01
2013	1.881E+03	1.506E+06	1.012E+02	5.025E+02	7.532E+05	5.061E+01
2014	1.789E+03	1.433E+06	9.628E+01	4.780E+02	7.165E+05	4.814E+01
2015	1.702E+03	1.363E+06	9.158E+01	4.547E+02	6.815E+05	4.579E+01
2016	1.619E+03	1.297E+06	8.712E+01	4.325E+02	6.483E+05	4.356E+01
2017	1.540E+03	1.233E+06	8.287E+01	4.114E+02	6.167E+05	4.143E+01
2018	1.465E+03	1.173E+06	7.883E+01	3.913E+02	5.866E+05	3.941E+01
2019	1.394E+03	1.116E+06	7.498E+01	3.723E+02	5.580E+05	3.749E+01
2020	1.326E+03	1.062E+06	7.133E+01	3.541E+02	5.308E+05	3.566E+01
2021	1.261E+03	1.010E+06	6.785E+01	3.368E+02	5.049E+05	3.392E+01
2022	1.200E+03	9.605E+05	6.454E+01	3.204E+02	4.803E+05	3.227E+01
2023	1.141E+03	9.137E+05	6.139E+01	3.048E+02	4.568E+05	3.070E+01
2024	1.085E+03	8.691E+05	5.840E+01	2.899E+02	4.346E+05	2.920E+01
2025	1.032E+03	8.267E+05	5.555E+01	2.758E+02	4.134E+05	2.777E+01
2026	9.821E+02	7.864E+05	5.284E+01	2.623E+02	3.932E+05	2.642E+01
2027	9.342E+02	7.481E+05	5.026E+01	2.495E+02	3.740E+05	2.513E+01
2028	8.886E+02	7.116E+05	4.781E+01	2.374E+02	3.558E+05	2.391E+01
2029	8.453E+02	6.769E+05	4.548E+01	2.258E+02	3.384E+05	2.274E+01
2030	8.041E+02	6.439E+05	4.326E+01	2.148E+02	3.219E+05	2.163E+01
2031	7.649E+02	6.125E+05	4.115E+01	2.043E+02	3.062E+05	2.058E+01

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2032	7.276E+02	5.826E+05	3.914E+01	1.943E+02	2.913E+05	1.957E+01
2033	6.921E+02	5.542E+05	3.724E+01	1.849E+02	2.771E+05	1.862E+01
2034	6.583E+02	5.271E+05	3.542E+01	1.758E+02	2.636E+05	1.771E+01
2035	6.262E+02	5.014E+05	3.369E+01	1.673E+02	2.507E+05	1.685E+01
2036	5.957E+02	4.770E+05	3.205E+01	1.591E+02	2.385E+05	1.602E+01
2037	5.666E+02	4.537E+05	3.049E+01	1.513E+02	2.269E+05	1.524E+01
2038	5.390E+02	4.316E+05	2.900E+01	1.440E+02	2.158E+05	1.450E+01
2039	5.127E+02	4.105E+05	2.758E+01	1.369E+02	2.053E+05	1.379E+01
2040	4.877E+02	3.905E+05	2.624E+01	1.303E+02	1.953E+05	1.312E+01
2041	4.639E+02	3.715E+05	2.496E+01	1.239E+02	1.857E+05	1.248E+01
2042	4.413E+02	3.534E+05	2.374E+01	1.179E+02	1.767E+05	1.187E+01
2043	4.198E+02	3.361E+05	2.258E+01	1.121E+02	1.681E+05	1.129E+01
2044	3.993E+02	3.197E+05	2.148E+01	1.067E+02	1.599E+05	1.074E+01
2045	3.798E+02	3.041E+05	2.044E+01	1.015E+02	1.521E+05	1.022E+01
2046	3.613E+02	2.893E+05	1.944E+01	9.650E+01	1.447E+05	9.719E+00
2047	3.437E+02	2.752E+05	1.849E+01	9.180E+01	1.376E+05	9.245E+00
2048	3.269E+02	2.618E+05	1.759E+01	8.732E+01	1.309E+05	8.794E+00
2049	3.110E+02	2.490E+05	1.673E+01	8.306E+01	1.245E+05	8.365E+00
2050	2.958E+02	2.369E+05	1.591E+01	7.901E+01	1.184E+05	7.957E+00
2051	2.814E+02	2.253E+05	1.514E+01	7.516E+01	1.127E+05	7.569E+00
2052	2.677E+02	2.143E+05	1.440E+01	7.149E+01	1.072E+05	7.200E+00
2053	2.546E+02	2.039E+05	1.370E+01	6.801E+01	1.019E+05	6.849E+00
2054	2.422E+02	1.939E+05	1.303E+01	6.469E+01	9.696E+04	6.515E+00
2055	2.304E+02	1.845E+05	1.239E+01	6.153E+01	9.223E+04	6.197E+00
2056	2.191E+02	1.755E+05	1.179E+01	5.853E+01	8.774E+04	5.895E+00
2057	2.084E+02	1.669E+05	1.121E+01	5.568E+01	8.346E+04	5.607E+00
2058	1.983E+02	1.588E+05	1.067E+01	5.296E+01	7.939E+04	5.334E+00
2059	1.886E+02	1.510E+05	1.015E+01	5.038E+01	7.552E+04	5.074E+00
2060	1.794E+02	1.437E+05	9.653E+00	4.792E+01	7.183E+04	4.826E+00
2061	1.707E+02	1.367E+05	9.182E+00	4.559E+01	6.833E+04	4.591E+00
2062	1.623E+02	1.300E+05	8.734E+00	4.336E+01	6.500E+04	4.367E+00
2063	1.544E+02	1.237E+05	8.308E+00	4.125E+01	6.183E+04	4.154E+00
2064	1.469E+02	1.176E+05	7.903E+00	3.924E+01	5.881E+04	3.952E+00
2065	1.397E+02	1.119E+05	7.518E+00	3.732E+01	5.594E+04	3.759E+00
2066	1.329E+02	1.064E+05	7.151E+00	3.550E+01	5.321E+04	3.575E+00
2067	1.264E+02	1.012E+05	6.802E+00	3.377E+01	5.062E+04	3.401E+00
2068	1.203E+02	9.630E+04	6.470E+00	3.212E+01	4.815E+04	3.235E+00
2069	1.144E+02	9.160E+04	6.155E+00	3.056E+01	4.580E+04	3.077E+00
2070	1.088E+02	8.714E+04	5.855E+00	2.907E+01	4.357E+04	2.927E+00
2071	1.035E+02	8.289E+04	5.569E+00	2.765E+01	4.144E+04	2.785E+00
2072	9.846E+01	7.884E+04	5.298E+00	2.630E+01	3.942E+04	2.649E+00
2073	9.366E+01	7.500E+04	5.039E+00	2.502E+01	3.750E+04	2.520E+00
2074	8.909E+01	7.134E+04	4.793E+00	2.380E+01	3.567E+04	2.397E+00
2075	8.475E+01	6.786E+04	4.560E+00	2.264E+01	3.393E+04	2.280E+00
2076	8.062E+01	6.455E+04	4.337E+00	2.153E+01	3.228E+04	2.169E+00
2077	7.668E+01	6.140E+04	4.126E+00	2.048E+01	3.070E+04	2.063E+00
2078	7.294E+01	5.841E+04	3.925E+00	1.948E+01	2.920E+04	1.962E+00
2079	6.939E+01	5.556E+04	3.733E+00	1.853E+01	2.778E+04	1.867E+00
2080	6.600E+01	5.285E+04	3.551E+00	1.763E+01	2.643E+04	1.776E+00
2081	6.278E+01	5.027E+04	3.378E+00	1.677E+01	2.514E+04	1.689E+00
2082	5.972E+01	4.782E+04	3.213E+00	1.595E+01	2.391E+04	1.607E+00

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2083	5.681E+01	4.549E+04	3.056E+00	1.517E+01	2.274E+04	1.528E+00
2084	5.404E+01	4.327E+04	2.907E+00	1.443E+01	2.164E+04	1.454E+00
2085	5.140E+01	4.116E+04	2.766E+00	1.373E+01	2.058E+04	1.383E+00
2086	4.890E+01	3.915E+04	2.631E+00	1.306E+01	1.958E+04	1.315E+00
2087	4.651E+01	3.724E+04	2.502E+00	1.242E+01	1.862E+04	1.251E+00
2088	4.424E+01	3.543E+04	2.380E+00	1.182E+01	1.771E+04	1.190E+00
2089	4.208E+01	3.370E+04	2.264E+00	1.124E+01	1.685E+04	1.132E+00
2090	4.003E+01	3.206E+04	2.154E+00	1.069E+01	1.603E+04	1.077E+00
2091	3.808E+01	3.049E+04	2.049E+00	1.017E+01	1.525E+04	1.024E+00
2092	3.622E+01	2.901E+04	1.949E+00	9.675E+00	1.450E+04	9.744E-01
2093	3.446E+01	2.759E+04	1.854E+00	9.204E+00	1.380E+04	9.269E-01
2094	3.278E+01	2.625E+04	1.763E+00	8.755E+00	1.312E+04	8.817E-01
2095	3.118E+01	2.497E+04	1.677E+00	8.328E+00	1.248E+04	8.387E-01
2096	2.966E+01	2.375E+04	1.596E+00	7.922E+00	1.187E+04	7.978E-01
2097	2.821E+01	2.259E+04	1.518E+00	7.535E+00	1.129E+04	7.589E-01
2098	2.683E+01	2.149E+04	1.444E+00	7.168E+00	1.074E+04	7.219E-01
2099	2.553E+01	2.044E+04	1.373E+00	6.818E+00	1.022E+04	6.867E-01
2100	2.428E+01	1.944E+04	1.306E+00	6.486E+00	9.721E+03	6.532E-01
2101	2.310E+01	1.849E+04	1.243E+00	6.169E+00	9.247E+03	6.213E-01
2102	2.197E+01	1.759E+04	1.182E+00	5.868E+00	8.796E+03	5.910E-01
2103	2.090E+01	1.673E+04	1.124E+00	5.582E+00	8.367E+03	5.622E-01
2104	1.988E+01	1.592E+04	1.070E+00	5.310E+00	7.959E+03	5.348E-01
2105	1.891E+01	1.514E+04	1.017E+00	5.051E+00	7.571E+03	5.087E-01
2106	1.799E+01	1.440E+04	9.678E-01	4.805E+00	7.202E+03	4.839E-01
2107	1.711E+01	1.370E+04	9.206E-01	4.570E+00	6.851E+03	4.603E-01
2108	1.628E+01	1.303E+04	8.757E-01	4.347E+00	6.516E+03	4.378E-01
2109	1.548E+01	1.240E+04	8.330E-01	4.135E+00	6.199E+03	4.165E-01
2110	1.473E+01	1.179E+04	7.924E-01	3.934E+00	5.896E+03	3.962E-01
2111	1.401E+01	1.122E+04	7.537E-01	3.742E+00	5.609E+03	3.769E-01
2112	1.333E+01	1.067E+04	7.169E-01	3.559E+00	5.335E+03	3.585E-01
2113	1.268E+01	1.015E+04	6.820E-01	3.386E+00	5.075E+03	3.410E-01
2114	1.206E+01	9.655E+03	6.487E-01	3.221E+00	4.828E+03	3.244E-01
2115	1.147E+01	9.184E+03	6.171E-01	3.064E+00	4.592E+03	3.085E-01
2116	1.091E+01	8.736E+03	5.870E-01	2.914E+00	4.368E+03	2.935E-01
2117	1.038E+01	8.310E+03	5.584E-01	2.772E+00	4.155E+03	2.792E-01
2118	9.872E+00	7.905E+03	5.311E-01	2.637E+00	3.952E+03	2.656E-01
2119	9.390E+00	7.519E+03	5.052E-01	2.508E+00	3.760E+03	2.526E-01
2120	8.932E+00	7.153E+03	4.806E-01	2.386E+00	3.576E+03	2.403E-01
2121	8.497E+00	6.804E+03	4.571E-01	2.270E+00	3.402E+03	2.286E-01
2122	8.082E+00	6.472E+03	4.349E-01	2.159E+00	3.236E+03	2.174E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1982	0	0	0	0	0	0
1983	2.836E+02	1.549E+05	1.041E+01	4.443E+00	1.240E+03	8.329E-02
1984	5.534E+02	3.023E+05	2.031E+01	8.670E+00	2.419E+03	1.625E-01
1985	8.100E+02	4.425E+05	2.973E+01	1.269E+01	3.540E+03	2.379E-01
1986	1.054E+03	5.759E+05	3.869E+01	1.651E+01	4.607E+03	3.096E-01
1987	1.286E+03	7.027E+05	4.722E+01	2.015E+01	5.622E+03	3.777E-01
1988	1.507E+03	8.234E+05	5.533E+01	2.361E+01	6.587E+03	4.426E-01
1989	1.717E+03	9.382E+05	6.304E+01	2.690E+01	7.506E+03	5.043E-01
1990	1.917E+03	1.047E+06	7.037E+01	3.003E+01	8.379E+03	5.630E-01
1991	2.107E+03	1.151E+06	7.735E+01	3.301E+01	9.210E+03	6.188E-01
1992	2.288E+03	1.250E+06	8.399E+01	3.585E+01	1.000E+04	6.719E-01
1993	2.460E+03	1.344E+06	9.030E+01	3.854E+01	1.075E+04	7.224E-01
1994	2.624E+03	1.433E+06	9.631E+01	4.110E+01	1.147E+04	7.725E-01
1995	2.780E+03	1.518E+06	1.020E+02	4.354E+01	1.215E+04	8.162E-01
1996	2.928E+03	1.599E+06	1.075E+02	4.586E+01	1.279E+04	8.597E-01
1997	3.068E+03	1.676E+06	1.126E+02	4.807E+01	1.341E+04	9.010E-01
1998	2.919E+03	1.595E+06	1.071E+02	4.572E+01	1.276E+04	8.571E-01
1999	2.776E+03	1.517E+06	1.019E+02	4.349E+01	1.213E+04	8.153E-01
2000	2.641E+03	1.443E+06	9.694E+01	4.137E+01	1.154E+04	7.755E-01
2001	2.512E+03	1.372E+06	9.221E+01	3.936E+01	1.098E+04	7.377E-01
2002	2.390E+03	1.305E+06	8.772E+01	3.744E+01	1.044E+04	7.017E-01
2003	2.273E+03	1.242E+06	8.344E+01	3.561E+01	9.935E+03	6.675E-01
2004	2.162E+03	1.181E+06	7.937E+01	3.387E+01	9.450E+03	6.349E-01
2005	2.057E+03	1.124E+06	7.550E+01	3.222E+01	8.989E+03	6.040E-01
2006	1.957E+03	1.069E+06	7.182E+01	3.065E+01	8.551E+03	5.745E-01
2007	1.861E+03	1.017E+06	6.831E+01	2.916E+01	8.134E+03	5.465E-01
2008	1.770E+03	9.671E+05	6.498E+01	2.773E+01	7.737E+03	5.199E-01
2009	1.684E+03	9.200E+05	6.181E+01	2.638E+01	7.360E+03	4.945E-01
2010	1.602E+03	8.751E+05	5.880E+01	2.509E+01	7.001E+03	4.704E-01
2011	1.524E+03	8.324E+05	5.593E+01	2.387E+01	6.659E+03	4.474E-01
2012	1.449E+03	7.918E+05	5.320E+01	2.271E+01	6.335E+03	4.256E-01
2013	1.379E+03	7.532E+05	5.061E+01	2.160E+01	6.026E+03	4.049E-01
2014	1.311E+03	7.165E+05	4.814E+01	2.055E+01	5.732E+03	3.851E-01
2015	1.248E+03	6.815E+05	4.579E+01	1.954E+01	5.452E+03	3.663E-01
2016	1.187E+03	6.483E+05	4.356E+01	1.859E+01	5.186E+03	3.485E-01
2017	1.129E+03	6.167E+05	4.143E+01	1.768E+01	4.933E+03	3.315E-01
2018	1.074E+03	5.866E+05	3.941E+01	1.682E+01	4.693E+03	3.153E-01
2019	1.021E+03	5.580E+05	3.749E+01	1.600E+01	4.464E+03	2.999E-01
2020	9.716E+02	5.308E+05	3.566E+01	1.522E+01	4.246E+03	2.853E-01
2021	9.242E+02	5.049E+05	3.392E+01	1.448E+01	4.039E+03	2.714E-01
2022	8.791E+02	4.803E+05	3.227E+01	1.377E+01	3.842E+03	2.582E-01
2023	8.362E+02	4.568E+05	3.070E+01	1.310E+01	3.655E+03	2.456E-01
2024	7.955E+02	4.346E+05	2.920E+01	1.246E+01	3.476E+03	2.336E-01
2025	7.567E+02	4.134E+05	2.777E+01	1.185E+01	3.307E+03	2.222E-01
2026	7.198E+02	3.932E+05	2.642E+01	1.128E+01	3.146E+03	2.114E-01
2027	6.847E+02	3.740E+05	2.513E+01	1.073E+01	2.992E+03	2.010E-01
2028	6.513E+02	3.558E+05	2.391E+01	1.020E+01	2.846E+03	1.912E-01
2029	6.195E+02	3.384E+05	2.274E+01	9.705E+00	2.707E+03	1.819E-01
2030	5.893E+02	3.219E+05	2.163E+01	9.232E+00	2.575E+03	1.730E-01
2031	5.606E+02	3.062E+05	2.058E+01	8.781E+00	2.450E+03	1.646E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2032	5.332E+02	2.913E+05	1.957E+01	8.353E+00	2.330E+03	1.566E-01
2033	5.072E+02	2.771E+05	1.862E+01	7.946E+00	2.217E+03	1.489E-01
2034	4.825E+02	2.636E+05	1.771E+01	7.558E+00	2.109E+03	1.417E-01
2035	4.589E+02	2.507E+05	1.685E+01	7.190E+00	2.006E+03	1.348E-01
2036	4.366E+02	2.385E+05	1.602E+01	6.839E+00	1.908E+03	1.282E-01
2037	4.153E+02	2.269E+05	1.524E+01	6.505E+00	1.815E+03	1.219E-01
2038	3.950E+02	2.158E+05	1.450E+01	6.188E+00	1.726E+03	1.160E-01
2039	3.758E+02	2.053E+05	1.379E+01	5.886E+00	1.642E+03	1.103E-01
2040	3.574E+02	1.953E+05	1.312E+01	5.599E+00	1.562E+03	1.050E-01
2041	3.400E+02	1.857E+05	1.248E+01	5.326E+00	1.486E+03	9.984E-02
2042	3.234E+02	1.767E+05	1.187E+01	5.066E+00	1.413E+03	9.497E-02
2043	3.076E+02	1.681E+05	1.129E+01	4.819E+00	1.345E+03	9.034E-02
2044	2.926E+02	1.599E+05	1.074E+01	4.584E+00	1.279E+03	8.593E-02
2045	2.784E+02	1.521E+05	1.022E+01	4.361E+00	1.217E+03	8.174E-02
2046	2.648E+02	1.447E+05	9.719E+00	4.148E+00	1.157E+03	7.775E-02
2047	2.519E+02	1.376E+05	9.245E+00	3.946E+00	1.101E+03	7.396E-02
2048	2.396E+02	1.309E+05	8.794E+00	3.753E+00	1.047E+03	7.050E-02
2049	2.279E+02	1.245E+05	8.365E+00	3.570E+00	9.960E+02	6.692E-02
2050	2.168E+02	1.184E+05	7.957E+00	3.396E+00	9.475E+02	6.366E-02
2051	2.062E+02	1.127E+05	7.569E+00	3.230E+00	9.012E+02	6.055E-02
2052	1.962E+02	1.072E+05	7.200E+00	3.073E+00	8.573E+02	5.760E-02
2053	1.866E+02	1.019E+05	6.849E+00	2.923E+00	8.155E+02	5.479E-02
2054	1.775E+02	9.696E+04	6.515E+00	2.781E+00	7.757E+02	5.212E-02
2055	1.688E+02	9.223E+04	6.197E+00	2.645E+00	7.379E+02	4.958E-02
2056	1.606E+02	8.774E+04	5.895E+00	2.516E+00	7.019E+02	4.716E-02
2057	1.528E+02	8.346E+04	5.607E+00	2.393E+00	6.677E+02	4.486E-02
2058	1.453E+02	7.939E+04	5.334E+00	2.276E+00	6.351E+02	4.267E-02
2059	1.382E+02	7.552E+04	5.074E+00	2.165E+00	6.041E+02	4.059E-02
2060	1.315E+02	7.183E+04	4.826E+00	2.060E+00	5.747E+02	3.861E-02
2061	1.251E+02	6.833E+04	4.591E+00	1.959E+00	5.466E+02	3.673E-02
2062	1.190E+02	6.500E+04	4.367E+00	1.864E+00	5.200E+02	3.494E-02
2063	1.132E+02	6.183E+04	4.154E+00	1.773E+00	4.946E+02	3.323E-02
2064	1.077E+02	5.881E+04	3.952E+00	1.686E+00	4.705E+02	3.161E-02
2065	1.024E+02	5.594E+04	3.759E+00	1.604E+00	4.475E+02	3.007E-02
2066	9.741E+01	5.321E+04	3.575E+00	1.526E+00	4.257E+02	2.860E-02
2067	9.266E+01	5.062E+04	3.401E+00	1.452E+00	4.050E+02	2.721E-02
2068	8.814E+01	4.815E+04	3.235E+00	1.381E+00	3.852E+02	2.588E-02
2069	8.384E+01	4.580E+04	3.077E+00	1.313E+00	3.664E+02	2.462E-02
2070	7.975E+01	4.357E+04	2.927E+00	1.249E+00	3.485E+02	2.342E-02
2071	7.586E+01	4.144E+04	2.785E+00	1.188E+00	3.315E+02	2.228E-02
2072	7.216E+01	3.942E+04	2.649E+00	1.130E+00	3.154E+02	2.119E-02
2073	6.864E+01	3.750E+04	2.520E+00	1.075E+00	3.000E+02	2.016E-02
2074	6.530E+01	3.567E+04	2.397E+00	1.023E+00	2.854E+02	1.917E-02
2075	6.211E+01	3.393E+04	2.280E+00	9.730E-01	2.714E+02	1.824E-02
2076	5.908E+01	3.228E+04	2.169E+00	9.255E-01	2.582E+02	1.735E-02
2077	5.620E+01	3.070E+04	2.063E+00	8.804E-01	2.456E+02	1.650E-02
2078	5.346E+01	2.920E+04	1.962E+00	8.375E-01	2.336E+02	1.570E-02
2079	5.085E+01	2.778E+04	1.867E+00	7.966E-01	2.222E+02	1.493E-02
2080	4.837E+01	2.643E+04	1.776E+00	7.578E-01	2.114E+02	1.420E-02
2081	4.601E+01	2.514E+04	1.689E+00	7.208E-01	2.011E+02	1.351E-02
2082	4.377E+01	2.391E+04	1.607E+00	6.857E-01	1.913E+02	1.285E-02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2083	4.163E+01	2.274E+04	1.528E+00	6.522E-01	1.820E+02	1.223E-02
2084	3.960E+01	2.164E+04	1.454E+00	6.204E-01	1.731E+02	1.163E-02
2085	3.767E+01	2.058E+04	1.383E+00	5.902E-01	1.646E+02	1.106E-02
2086	3.583E+01	1.958E+04	1.315E+00	5.614E-01	1.566E+02	1.052E-02
2087	3.409E+01	1.862E+04	1.251E+00	5.340E-01	1.490E+02	1.001E-02
2088	3.242E+01	1.771E+04	1.190E+00	5.080E-01	1.417E+02	9.521E-03
2089	3.084E+01	1.685E+04	1.132E+00	4.832E-01	1.348E+02	9.057E-03
2090	2.934E+01	1.603E+04	1.077E+00	4.596E-01	1.282E+02	8.615E-03
2091	2.791E+01	1.525E+04	1.024E+00	4.372E-01	1.220E+02	8.195E-03
2092	2.655E+01	1.450E+04	9.744E-01	4.159E-01	1.160E+02	7.795E-03
2093	2.525E+01	1.380E+04	9.269E-01	3.956E-01	1.104E+02	7.415E-03
2094	2.402E+01	1.312E+04	8.817E-01	3.763E-01	1.050E+02	7.054E-03
2095	2.285E+01	1.248E+04	8.387E-01	3.579E-01	9.986E+01	6.710E-03
2096	2.174E+01	1.187E+04	7.978E-01	3.405E-01	9.499E+01	6.382E-03
2097	2.067E+01	1.129E+04	7.589E-01	3.239E-01	9.036E+01	6.071E-03
2098	1.967E+01	1.074E+04	7.219E-01	3.081E-01	8.595E+01	5.775E-03
2099	1.871E+01	1.022E+04	6.867E-01	2.931E-01	8.176E+01	5.493E-03
2100	1.780E+01	9.721E+03	6.532E-01	2.788E-01	7.777E+01	5.225E-03
2101	1.693E+01	9.247E+03	6.213E-01	2.652E-01	7.398E+01	4.971E-03
2102	1.610E+01	8.796E+03	5.910E-01	2.522E-01	7.037E+01	4.728E-03
2103	1.532E+01	8.367E+03	5.622E-01	2.399E-01	6.694E+01	4.498E-03
2104	1.457E+01	7.959E+03	5.348E-01	2.282E-01	6.367E+01	4.278E-03
2105	1.386E+01	7.571E+03	5.087E-01	2.171E-01	6.057E+01	4.070E-03
2106	1.318E+01	7.202E+03	4.839E-01	2.065E-01	5.761E+01	3.871E-03
2107	1.254E+01	6.851E+03	4.603E-01	1.964E-01	5.480E+01	3.682E-03
2108	1.193E+01	6.516E+03	4.378E-01	1.869E-01	5.213E+01	3.503E-03
2109	1.135E+01	6.199E+03	4.165E-01	1.778E-01	4.959E+01	3.332E-03
2110	1.079E+01	5.896E+03	3.962E-01	1.691E-01	4.717E+01	3.169E-03
2111	1.027E+01	5.609E+03	3.769E-01	1.608E-01	4.487E+01	3.015E-03
2112	9.766E+00	5.335E+03	3.585E-01	1.530E-01	4.268E+01	2.868E-03
2113	9.290E+00	5.075E+03	3.410E-01	1.455E-01	4.060E+01	2.728E-03
2114	8.837E+00	4.828E+03	3.244E-01	1.384E-01	3.862E+01	2.595E-03
2115	8.406E+00	4.592E+03	3.085E-01	1.317E-01	3.674E+01	2.468E-03
2116	7.996E+00	4.368E+03	2.935E-01	1.253E-01	3.495E+01	2.348E-03
2117	7.606E+00	4.155E+03	2.792E-01	1.192E-01	3.324E+01	2.233E-03
2118	7.235E+00	3.952E+03	2.656E-01	1.133E-01	3.162E+01	2.125E-03
2119	6.882E+00	3.760E+03	2.526E-01	1.078E-01	3.008E+01	2.021E-03
2120	6.546E+00	3.576E+03	2.403E-01	1.026E-01	2.861E+01	1.922E-03
2121	6.227E+00	3.402E+03	2.286E-01	9.755E-02	2.722E+01	1.829E-03
2122	5.923E+00	3.236E+03	2.174E-01	9.279E-02	2.589E+01	1.739E-03