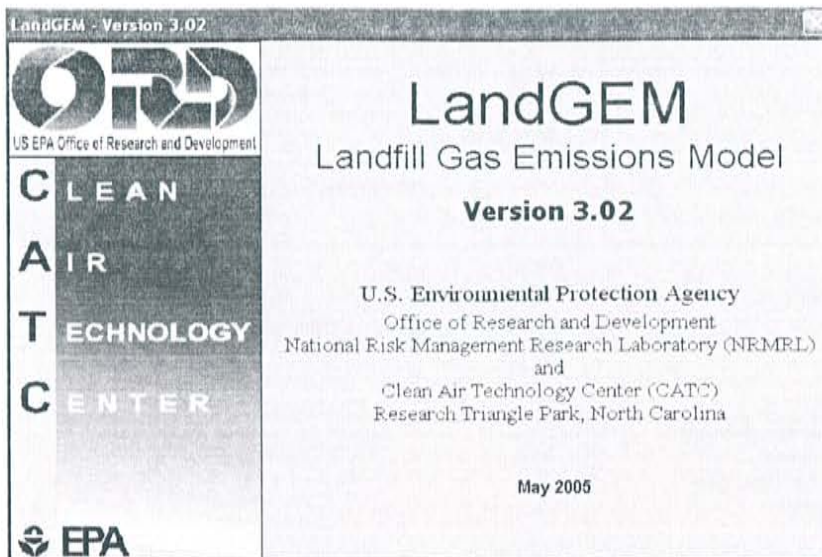


A N N E X E « QC-138 »

RAPPORT DE PRODUCTION DE BIOGAZ PAR LANDGEM



Summary Report

Landfill Name or Identifier: Dispersion atmosphérique - LES Neuville

Date: 21 juillet 2008

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/Mq)

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

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	1988	
Landfill Closure Year (with 80-year limit)	2009	
Actual Closure Year (without limit)	2009	
Have Model Calculate Closure Year?	No	
Waste Design Capacity		<i>megagrams</i>

MODEL PARAMETERS

Methane Generation Rate, k	0.054	<i>year⁻¹</i>
Potential Methane Generation Capacity, L ₀	130	<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)
1988	36 000	39 600	0	0
1989	36 000	39 600	36 000	39 600
1990	36 000	39 600	72 000	79 200
1991	36 000	39 600	108 000	118 800
1992	36 000	39 600	144 000	158 400
1993	36 000	39 600	180 000	198 000
1994	36 000	39 600	216 000	237 600
1995	36 000	39 600	252 000	277 200
1996	36 000	39 600	288 000	316 800
1997	36 000	39 600	324 000	356 400
1998	36 000	39 600	360 000	396 000
1999	36 000	39 600	396 000	435 600
2000	36 000	39 600	432 000	475 200
2001	41 500	45 650	468 000	514 800
2002	36 995	40 695	509 500	560 450
2003	38 059	41 865	546 495	601 145
2004	46 095	50 705	584 554	643 009
2005	40 000	44 000	630 649	693 714
2006	40 000	44 000	670 649	737 714
2007	40 000	44 000	710 649	781 714
2008	40 000	44 000	750 649	825 714
2009	0	0	790 649	869 714
2010	0	0	790 649	869 714
2011	0	0	790 649	869 714
2012	0	0	790 649	869 714
2013	0	0	790 649	869 714
2014	0	0	790 649	869 714
2015	0	0	790 649	869 714
2016	0	0	790 649	869 714
2017	0	0	790 649	869 714
2018	0	0	790 649	869 714
2019	0	0	790 649	869 714
2020	0	0	790 649	869 714
2021	0	0	790 649	869 714
2022	0	0	790 649	869 714
2023	0	0	790 649	869 714
2024	0	0	790 649	869 714
2025	0	0	790 649	869 714
2026	0	0	790 649	869 714
2027	0	0	790 649	869 714

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2028	0	0	790 649	869 714
2029	0	0	790 649	869 714
2030	0	0	790 649	869 714
2031	0	0	790 649	869 714
2032	0	0	790 649	869 714
2033	0	0	790 649	869 714
2034	0	0	790 649	869 714
2035	0	0	790 649	869 714
2036	0	0	790 649	869 714
2037	0	0	790 649	869 714
2038	0	0	790 649	869 714
2039	0	0	790 649	869 714
2040	0	0	790 649	869 714
2041	0	0	790 649	869 714
2042	0	0	790 649	869 714
2043	0	0	790 649	869 714
2044	0	0	790 649	869 714
2045	0	0	790 649	869 714
2046	0	0	790 649	869 714
2047	0	0	790 649	869 714
2048	0	0	790 649	869 714
2049	0	0	790 649	869 714
2050	0	0	790 649	869 714
2051	0	0	790 649	869 714
2052	0	0	790 649	869 714
2053	0	0	790 649	869 714
2054	0	0	790 649	869 714
2055	0	0	790 649	869 714
2056	0	0	790 649	869 714
2057	0	0	790 649	869 714
2058	0	0	790 649	869 714
2059	0	0	790 649	869 714
2060	0	0	790 649	869 714
2061	0	0	790 649	869 714
2062	0	0	790 649	869 714
2063	0	0	790 649	869 714
2064	0	0	790 649	869 714
2065	0	0	790 649	869 714
2066	0	0	790 649	869 714
2067	0	0	790 649	869 714

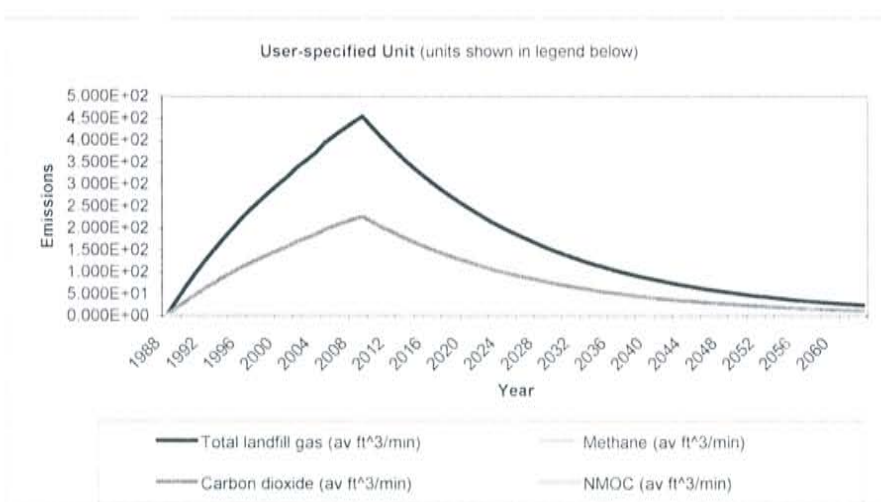
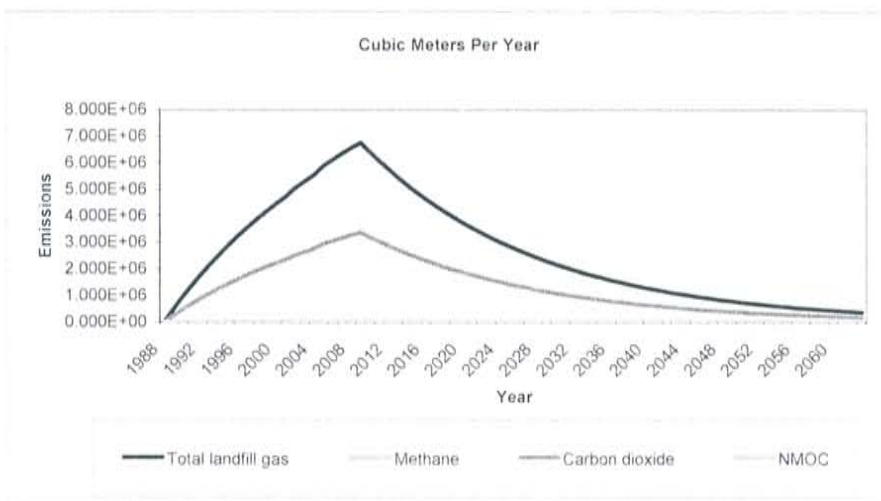
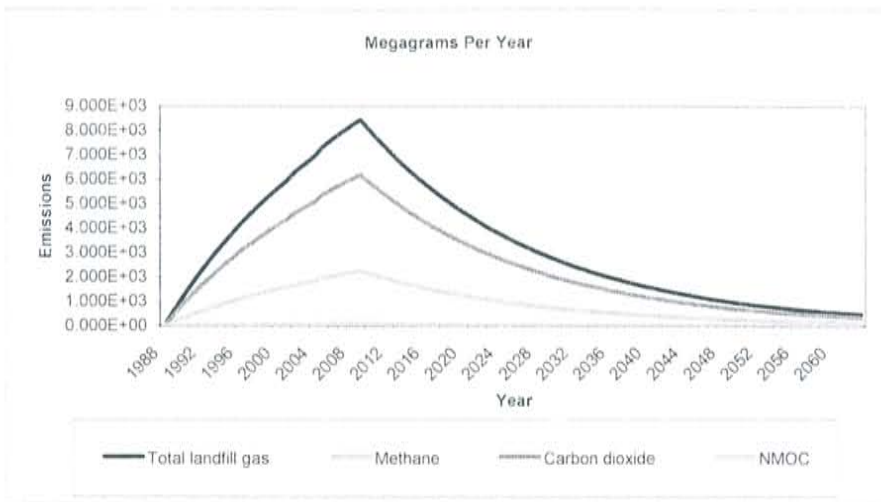
Pollutant Parameters

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		

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		

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)
1988	0	0	0	0	0	0
1989	6.161E+02	4.934E+05	3.315E+01	1.646E+02	2.467E+05	1.657E+01
1990	1.200E+03	9.608E+05	6.456E+01	3.205E+02	4.804E+05	3.228E+01
1991	1.753E+03	1.404E+06	9.431E+01	4.682E+02	7.018E+05	4.716E+01
1992	2.277E+03	1.823E+06	1.225E+02	6.082E+02	9.116E+05	6.125E+01
1993	2.773E+03	2.221E+06	1.492E+02	7.408E+02	1.110E+06	7.461E+01
1994	3.244E+03	2.597E+06	1.745E+02	8.664E+02	1.299E+06	8.726E+01
1995	3.689E+03	2.954E+06	1.985E+02	9.854E+02	1.477E+06	9.925E+01
1996	4.111E+03	3.292E+06	2.212E+02	1.098E+03	1.646E+06	1.106E+02
1997	4.511E+03	3.613E+06	2.427E+02	1.205E+03	1.806E+06	1.214E+02
1998	4.890E+03	3.916E+06	2.631E+02	1.306E+03	1.958E+06	1.316E+02
1999	5.249E+03	4.204E+06	2.824E+02	1.402E+03	2.102E+06	1.412E+02
2000	5.590E+03	4.476E+06	3.007E+02	1.493E+03	2.238E+06	1.504E+02
2001	5.912E+03	4.734E+06	3.181E+02	1.579E+03	2.367E+06	1.590E+02
2002	6.311E+03	5.054E+06	3.396E+02	1.686E+03	2.527E+06	1.698E+02
2003	6.613E+03	5.295E+06	3.558E+02	1.766E+03	2.648E+06	1.779E+02
2004	6.917E+03	5.538E+06	3.721E+02	1.847E+03	2.769E+06	1.861E+02
2005	7.342E+03	5.879E+06	3.950E+02	1.961E+03	2.940E+06	1.975E+02
2006	7.640E+03	6.118E+06	4.111E+02	2.041E+03	3.059E+06	2.055E+02
2007	7.923E+03	6.345E+06	4.263E+02	2.116E+03	3.172E+06	2.132E+02
2008	8.191E+03	6.559E+06	4.407E+02	2.188E+03	3.280E+06	2.204E+02
2009	8.445E+03	6.763E+06	4.544E+02	2.256E+03	3.381E+06	2.272E+02
2010	8.002E+03	6.407E+06	4.305E+02	2.137E+03	3.204E+06	2.153E+02
2011	7.581E+03	6.070E+06	4.079E+02	2.025E+03	3.035E+06	2.039E+02
2012	7.182E+03	5.751E+06	3.864E+02	1.918E+03	2.876E+06	1.932E+02
2013	6.805E+03	5.449E+06	3.661E+02	1.818E+03	2.724E+06	1.831E+02
2014	6.447E+03	5.163E+06	3.469E+02	1.722E+03	2.581E+06	1.734E+02
2015	6.108E+03	4.891E+06	3.286E+02	1.632E+03	2.446E+06	1.643E+02
2016	5.787E+03	4.634E+06	3.114E+02	1.546E+03	2.317E+06	1.557E+02
2017	5.483E+03	4.390E+06	2.950E+02	1.465E+03	2.195E+06	1.475E+02
2018	5.195E+03	4.160E+06	2.795E+02	1.388E+03	2.080E+06	1.397E+02
2019	4.922E+03	3.941E+06	2.648E+02	1.315E+03	1.970E+06	1.324E+02
2020	4.663E+03	3.734E+06	2.509E+02	1.246E+03	1.867E+06	1.254E+02
2021	4.418E+03	3.538E+06	2.377E+02	1.180E+03	1.769E+06	1.188E+02
2022	4.186E+03	3.352E+06	2.252E+02	1.118E+03	1.676E+06	1.126E+02
2023	3.965E+03	3.175E+06	2.134E+02	1.059E+03	1.588E+06	1.067E+02
2024	3.757E+03	3.008E+06	2.021E+02	1.004E+03	1.504E+06	1.011E+02
2025	3.560E+03	2.850E+06	1.915E+02	9.508E+02	1.425E+06	9.576E+01
2026	3.372E+03	2.700E+06	1.814E+02	9.008E+02	1.350E+06	9.072E+01
2027	3.195E+03	2.559E+06	1.719E+02	8.535E+02	1.279E+06	8.595E+01
2028	3.027E+03	2.424E+06	1.629E+02	8.086E+02	1.212E+06	8.143E+01
2029	2.868E+03	2.297E+06	1.543E+02	7.661E+02	1.148E+06	7.715E+01
2030	2.717E+03	2.176E+06	1.462E+02	7.258E+02	1.088E+06	7.310E+01
2031	2.574E+03	2.061E+06	1.385E+02	6.877E+02	1.031E+06	6.926E+01
2032	2.439E+03	1.953E+06	1.312E+02	6.515E+02	9.766E+05	6.561E+01
2033	2.311E+03	1.850E+06	1.243E+02	6.173E+02	9.252E+05	6.217E+01
2034	2.189E+03	1.753E+06	1.178E+02	5.848E+02	8.766E+05	5.890E+01
2035	2.074E+03	1.661E+06	1.116E+02	5.541E+02	8.305E+05	5.580E+01
2036	1.965E+03	1.574E+06	1.057E+02	5.249E+02	7.868E+05	5.287E+01
2037	1.862E+03	1.491E+06	1.002E+02	4.973E+02	7.455E+05	5.009E+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)
2038	1.764E+03	1.413E+06	9.491E+01	4.712E+02	7.063E+05	4.746E+01
2039	1.671E+03	1.338E+06	8.992E+01	4.464E+02	6.692E+05	4.496E+01
2040	1.583E+03	1.268E+06	8.520E+01	4.230E+02	6.340E+05	4.260E+01
2041	1.500E+03	1.201E+06	8.072E+01	4.007E+02	6.007E+05	4.036E+01
2042	1.421E+03	1.138E+06	7.647E+01	3.797E+02	5.691E+05	3.824E+01
2043	1.347E+03	1.078E+06	7.245E+01	3.597E+02	5.392E+05	3.623E+01
2044	1.276E+03	1.022E+06	6.865E+01	3.408E+02	5.108E+05	3.432E+01
2045	1.209E+03	9.680E+05	6.504E+01	3.229E+02	4.840E+05	3.252E+01
2046	1.145E+03	9.171E+05	6.162E+01	3.059E+02	4.585E+05	3.081E+01
2047	1.085E+03	8.689E+05	5.838E+01	2.898E+02	4.344E+05	2.919E+01
2048	1.028E+03	8.232E+05	5.531E+01	2.746E+02	4.116E+05	2.765E+01
2049	9.740E+02	7.799E+05	5.240E+01	2.602E+02	3.900E+05	2.620E+01
2050	9.228E+02	7.389E+05	4.965E+01	2.465E+02	3.695E+05	2.482E+01
2051	8.743E+02	7.001E+05	4.704E+01	2.335E+02	3.500E+05	2.352E+01
2052	8.283E+02	6.633E+05	4.457E+01	2.213E+02	3.316E+05	2.228E+01
2053	7.848E+02	6.284E+05	4.222E+01	2.096E+02	3.142E+05	2.111E+01
2054	7.435E+02	5.954E+05	4.000E+01	1.986E+02	2.977E+05	2.000E+01
2055	7.044E+02	5.641E+05	3.790E+01	1.882E+02	2.820E+05	1.895E+01
2056	6.674E+02	5.344E+05	3.591E+01	1.783E+02	2.672E+05	1.795E+01
2057	6.323E+02	5.063E+05	3.402E+01	1.689E+02	2.532E+05	1.701E+01
2058	5.991E+02	4.797E+05	3.223E+01	1.600E+02	2.399E+05	1.612E+01
2059	5.676E+02	4.545E+05	3.054E+01	1.516E+02	2.272E+05	1.527E+01
2060	5.377E+02	4.306E+05	2.893E+01	1.436E+02	2.153E+05	1.447E+01
2061	5.095E+02	4.080E+05	2.741E+01	1.361E+02	2.040E+05	1.371E+01
2062	4.827E+02	3.865E+05	2.597E+01	1.289E+02	1.933E+05	1.299E+01
2063	4.573E+02	3.662E+05	2.461E+01	1.222E+02	1.831E+05	1.230E+01
2064	4.333E+02	3.470E+05	2.331E+01	1.157E+02	1.735E+05	1.166E+01
2065	4.105E+02	3.287E+05	2.209E+01	1.097E+02	1.644E+05	1.104E+01
2066	3.889E+02	3.114E+05	2.093E+01	1.039E+02	1.557E+05	1.046E+01
2067	3.685E+02	2.951E+05	1.983E+01	9.842E+01	1.475E+05	9.913E+00
2068	3.491E+02	2.796E+05	1.878E+01	9.325E+01	1.398E+05	9.391E+00
2069	3.308E+02	2.649E+05	1.780E+01	8.835E+01	1.324E+05	8.898E+00
2070	3.134E+02	2.509E+05	1.686E+01	8.370E+01	1.255E+05	8.430E+00
2071	2.969E+02	2.377E+05	1.597E+01	7.930E+01	1.189E+05	7.987E+00
2072	2.813E+02	2.252E+05	1.513E+01	7.514E+01	1.126E+05	7.567E+00
2073	2.665E+02	2.134E+05	1.434E+01	7.119E+01	1.067E+05	7.169E+00
2074	2.525E+02	2.022E+05	1.358E+01	6.744E+01	1.011E+05	6.792E+00
2075	2.392E+02	1.916E+05	1.287E+01	6.390E+01	9.578E+04	6.435E+00
2076	2.266E+02	1.815E+05	1.219E+01	6.054E+01	9.074E+04	6.097E+00
2077	2.147E+02	1.719E+05	1.155E+01	5.736E+01	8.597E+04	5.777E+00
2078	2.034E+02	1.629E+05	1.095E+01	5.434E+01	8.145E+04	5.473E+00
2079	1.927E+02	1.543E+05	1.037E+01	5.149E+01	7.717E+04	5.185E+00
2080	1.826E+02	1.462E+05	9.825E+00	4.878E+01	7.312E+04	4.913E+00
2081	1.730E+02	1.385E+05	9.309E+00	4.621E+01	6.927E+04	4.654E+00
2082	1.639E+02	1.313E+05	8.819E+00	4.379E+01	6.563E+04	4.410E+00
2083	1.553E+02	1.244E+05	8.356E+00	4.148E+01	6.218E+04	4.178E+00
2084	1.471E+02	1.178E+05	7.917E+00	3.930E+01	5.891E+04	3.958E+00
2085	1.394E+02	1.116E+05	7.500E+00	3.724E+01	5.581E+04	3.750E+00
2086	1.321E+02	1.058E+05	7.106E+00	3.528E+01	5.288E+04	3.553E+00
2087	1.251E+02	1.002E+05	6.733E+00	3.342E+01	5.010E+04	3.366E+00
2088	1.186E+02	9.493E+04	6.379E+00	3.167E+01	4.747E+04	3.189E+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)
2089	1.123E+02	8.994E+04	6.043E+00	3.000E+01	4.497E+04	3.022E+00
2090	1.064E+02	8.522E+04	5.726E+00	2.843E+01	4.261E+04	2.863E+00
2091	1.008E+02	8.074E+04	5.425E+00	2.693E+01	4.037E+04	2.712E+00
2092	9.552E+01	7.649E+04	5.139E+00	2.552E+01	3.825E+04	2.570E+00
2093	9.050E+01	7.247E+04	4.869E+00	2.417E+01	3.624E+04	2.435E+00
2094	8.575E+01	6.866E+04	4.613E+00	2.290E+01	3.433E+04	2.307E+00
2095	8.124E+01	6.505E+04	4.371E+00	2.170E+01	3.253E+04	2.185E+00
2096	7.697E+01	6.163E+04	4.141E+00	2.056E+01	3.082E+04	2.071E+00
2097	7.292E+01	5.839E+04	3.923E+00	1.948E+01	2.920E+04	1.962E+00
2098	6.909E+01	5.532E+04	3.717E+00	1.845E+01	2.766E+04	1.859E+00
2099	6.546E+01	5.241E+04	3.522E+00	1.748E+01	2.621E+04	1.761E+00
2100	6.202E+01	4.966E+04	3.337E+00	1.657E+01	2.483E+04	1.668E+00
2101	5.876E+01	4.705E+04	3.161E+00	1.569E+01	2.352E+04	1.581E+00
2102	5.567E+01	4.458E+04	2.995E+00	1.487E+01	2.229E+04	1.498E+00
2103	5.274E+01	4.223E+04	2.838E+00	1.409E+01	2.112E+04	1.419E+00
2104	4.997E+01	4.001E+04	2.688E+00	1.335E+01	2.001E+04	1.344E+00
2105	4.734E+01	3.791E+04	2.547E+00	1.265E+01	1.895E+04	1.274E+00
2106	4.485E+01	3.592E+04	2.413E+00	1.198E+01	1.796E+04	1.207E+00
2107	4.249E+01	3.403E+04	2.286E+00	1.135E+01	1.701E+04	1.143E+00
2108	4.026E+01	3.224E+04	2.166E+00	1.075E+01	1.612E+04	1.083E+00
2109	3.814E+01	3.054E+04	2.052E+00	1.019E+01	1.527E+04	1.026E+00
2110	3.614E+01	2.894E+04	1.944E+00	9.653E+00	1.447E+04	9.722E-01
2111	3.424E+01	2.742E+04	1.842E+00	9.146E+00	1.371E+04	9.211E-01
2112	3.244E+01	2.598E+04	1.745E+00	8.665E+00	1.299E+04	8.727E-01
2113	3.073E+01	2.461E+04	1.654E+00	8.210E+00	1.231E+04	8.268E-01
2114	2.912E+01	2.332E+04	1.567E+00	7.778E+00	1.166E+04	7.833E-01
2115	2.759E+01	2.209E+04	1.484E+00	7.369E+00	1.105E+04	7.422E-01
2116	2.614E+01	2.093E+04	1.406E+00	6.982E+00	1.046E+04	7.031E-01
2117	2.476E+01	1.983E+04	1.332E+00	6.615E+00	9.915E+03	6.662E-01
2118	2.346E+01	1.879E+04	1.262E+00	6.267E+00	9.394E+03	6.312E-01
2119	2.223E+01	1.780E+04	1.196E+00	5.938E+00	8.900E+03	5.980E-01
2120	2.106E+01	1.686E+04	1.133E+00	5.625E+00	8.432E+03	5.665E-01
2121	1.995E+01	1.598E+04	1.074E+00	5.330E+00	7.989E+03	5.368E-01
2122	1.890E+01	1.514E+04	1.017E+00	5.050E+00	7.569E+03	5.085E-01
2123	1.791E+01	1.434E+04	9.636E-01	4.784E+00	7.171E+03	4.818E-01
2124	1.697E+01	1.359E+04	9.130E-01	4.533E+00	6.794E+03	4.565E-01
2125	1.608E+01	1.287E+04	8.650E-01	4.294E+00	6.437E+03	4.325E-01
2126	1.523E+01	1.220E+04	8.195E-01	4.069E+00	6.098E+03	4.098E-01
2127	1.443E+01	1.156E+04	7.764E-01	3.855E+00	5.778E+03	3.882E-01
2128	1.367E+01	1.095E+04	7.356E-01	3.652E+00	5.474E+03	3.678E-01

Results (Continued)

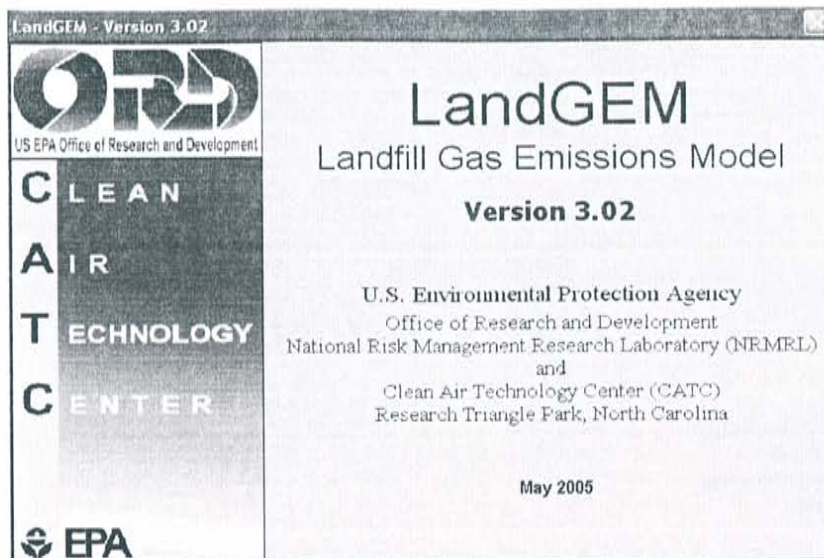
Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1988	0	0	0	0	0	0
1989	4.516E+02	2.467E+05	1.657E+01	7.074E+00	1.973E+03	1.326E-01
1990	8.794E+02	4.804E+05	3.228E+01	1.378E+01	3.843E+03	2.582E-01
1991	1.285E+03	7.018E+05	4.716E+01	2.013E+01	5.615E+03	3.772E-01
1992	1.669E+03	9.116E+05	6.125E+01	2.614E+01	7.293E+03	4.900E-01
1993	2.033E+03	1.110E+06	7.461E+01	3.184E+01	8.883E+03	5.968E-01
1994	2.377E+03	1.299E+06	8.726E+01	3.724E+01	1.039E+04	6.981E-01
1995	2.704E+03	1.477E+06	9.925E+01	4.236E+01	1.182E+04	7.940E-01
1996	3.013E+03	1.646E+06	1.106E+02	4.720E+01	1.317E+04	8.848E-01
1997	3.306E+03	1.806E+06	1.214E+02	5.180E+01	1.445E+04	9.709E-01
1998	3.584E+03	1.958E+06	1.316E+02	5.615E+01	1.566E+04	1.052E+00
1999	3.847E+03	2.102E+06	1.412E+02	6.027E+01	1.681E+04	1.130E+00
2000	4.097E+03	2.238E+06	1.504E+02	6.418E+01	1.790E+04	1.203E+00
2001	4.333E+03	2.367E+06	1.590E+02	6.788E+01	1.894E+04	1.272E+00
2002	4.626E+03	2.527E+06	1.698E+02	7.246E+01	2.022E+04	1.358E+00
2003	4.846E+03	2.648E+06	1.779E+02	7.592E+01	2.118E+04	1.423E+00
2004	5.069E+03	2.769E+06	1.861E+02	7.941E+01	2.215E+04	1.489E+00
2005	5.381E+03	2.940E+06	1.975E+02	8.429E+01	2.352E+04	1.580E+00
2006	5.600E+03	3.059E+06	2.055E+02	8.772E+01	2.447E+04	1.644E+00
2007	5.807E+03	3.172E+06	2.132E+02	9.097E+01	2.538E+04	1.705E+00
2008	6.003E+03	3.280E+06	2.204E+02	9.405E+01	2.624E+04	1.763E+00
2009	6.190E+03	3.381E+06	2.272E+02	9.696E+01	2.705E+04	1.818E+00
2010	5.864E+03	3.204E+06	2.153E+02	9.187E+01	2.563E+04	1.722E+00
2011	5.556E+03	3.035E+06	2.039E+02	8.704E+01	2.428E+04	1.631E+00
2012	5.264E+03	2.876E+06	1.932E+02	8.246E+01	2.301E+04	1.546E+00
2013	4.987E+03	2.724E+06	1.831E+02	7.813E+01	2.180E+04	1.464E+00
2014	4.725E+03	2.581E+06	1.734E+02	7.402E+01	2.065E+04	1.387E+00
2015	4.477E+03	2.446E+06	1.643E+02	7.013E+01	1.956E+04	1.315E+00
2016	4.241E+03	2.317E+06	1.557E+02	6.644E+01	1.854E+04	1.245E+00
2017	4.018E+03	2.195E+06	1.475E+02	6.295E+01	1.756E+04	1.180E+00
2018	3.807E+03	2.080E+06	1.397E+02	5.964E+01	1.664E+04	1.118E+00
2019	3.607E+03	1.970E+06	1.324E+02	5.651E+01	1.576E+04	1.059E+00
2020	3.417E+03	1.867E+06	1.254E+02	5.353E+01	1.494E+04	1.003E+00
2021	3.238E+03	1.769E+06	1.188E+02	5.072E+01	1.415E+04	9.507E-01
2022	3.068E+03	1.676E+06	1.126E+02	4.805E+01	1.341E+04	9.008E-01
2023	2.906E+03	1.588E+06	1.067E+02	4.553E+01	1.270E+04	8.534E-01
2024	2.753E+03	1.504E+06	1.011E+02	4.313E+01	1.203E+04	8.086E-01
2025	2.609E+03	1.425E+06	9.576E+01	4.087E+01	1.140E+04	7.660E-01
2026	2.472E+03	1.350E+06	9.072E+01	3.872E+01	1.080E+04	7.258E-01
2027	2.342E+03	1.279E+06	8.595E+01	3.668E+01	1.023E+04	6.876E-01
2028	2.219E+03	1.212E+06	8.143E+01	3.476E+01	9.696E+03	6.515E-01
2029	2.102E+03	1.148E+06	7.715E+01	3.293E+01	9.186E+03	6.172E-01
2030	1.991E+03	1.088E+06	7.310E+01	3.120E+01	8.703E+03	5.848E-01
2031	1.887E+03	1.031E+06	6.926E+01	2.956E+01	8.246E+03	5.540E-01
2032	1.788E+03	9.766E+05	6.561E+01	2.800E+01	7.812E+03	5.249E-01
2033	1.694E+03	9.252E+05	6.217E+01	2.653E+01	7.402E+03	4.973E-01
2034	1.605E+03	8.766E+05	5.890E+01	2.514E+01	7.013E+03	4.712E-01
2035	1.520E+03	8.305E+05	5.580E+01	2.382E+01	6.644E+03	4.464E-01
2036	1.440E+03	7.868E+05	5.287E+01	2.256E+01	6.295E+03	4.229E-01
2037	1.365E+03	7.455E+05	5.009E+01	2.138E+01	5.964E+03	4.007E-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)
2038	1.293E+03	7.063E+05	4.746E+01	2.025E+01	5.650E+03	3.796E-01
2039	1.225E+03	6.692E+05	4.496E+01	1.919E+01	5.353E+03	3.597E-01
2040	1.161E+03	6.340E+05	4.260E+01	1.818E+01	5.072E+03	3.408E-01
2041	1.100E+03	6.007E+05	4.036E+01	1.722E+01	4.805E+03	3.229E-01
2042	1.042E+03	5.691E+05	3.824E+01	1.632E+01	4.553E+03	3.059E-01
2043	9.870E+02	5.392E+05	3.623E+01	1.546E+01	4.313E+03	2.898E-01
2044	9.351E+02	5.108E+05	3.432E+01	1.465E+01	4.087E+03	2.746E-01
2045	8.859E+02	4.840E+05	3.252E+01	1.388E+01	3.872E+03	2.601E-01
2046	8.393E+02	4.585E+05	3.081E+01	1.315E+01	3.668E+03	2.465E-01
2047	7.952E+02	4.344E+05	2.919E+01	1.246E+01	3.475E+03	2.335E-01
2048	7.534E+02	4.116E+05	2.765E+01	1.180E+01	3.293E+03	2.212E-01
2049	7.138E+02	3.900E+05	2.620E+01	1.118E+01	3.120E+03	2.096E-01
2050	6.763E+02	3.695E+05	2.482E+01	1.059E+01	2.956E+03	1.986E-01
2051	6.407E+02	3.500E+05	2.352E+01	1.004E+01	2.800E+03	1.882E-01
2052	6.071E+02	3.316E+05	2.228E+01	9.510E+00	2.653E+03	1.783E-01
2053	5.751E+02	3.142E+05	2.111E+01	9.010E+00	2.514E+03	1.689E-01
2054	5.449E+02	2.977E+05	2.000E+01	8.536E+00	2.381E+03	1.600E-01
2055	5.163E+02	2.820E+05	1.895E+01	8.088E+00	2.256E+03	1.516E-01
2056	4.891E+02	2.672E+05	1.795E+01	7.662E+00	2.138E+03	1.436E-01
2057	4.634E+02	2.532E+05	1.701E+01	7.260E+00	2.025E+03	1.361E-01
2058	4.391E+02	2.399E+05	1.612E+01	6.878E+00	1.919E+03	1.289E-01
2059	4.160E+02	2.272E+05	1.527E+01	6.516E+00	1.818E+03	1.221E-01
2060	3.941E+02	2.153E+05	1.447E+01	6.174E+00	1.722E+03	1.157E-01
2061	3.734E+02	2.040E+05	1.371E+01	5.849E+00	1.632E+03	1.096E-01
2062	3.538E+02	1.933E+05	1.299E+01	5.542E+00	1.546E+03	1.039E-01
2063	3.352E+02	1.831E+05	1.230E+01	5.251E+00	1.465E+03	9.842E-02
2064	3.175E+02	1.735E+05	1.166E+01	4.975E+00	1.388E+03	9.325E-02
2065	3.009E+02	1.644E+05	1.104E+01	4.713E+00	1.315E+03	8.834E-02
2066	2.850E+02	1.557E+05	1.046E+01	4.465E+00	1.246E+03	8.370E-02
2067	2.701E+02	1.475E+05	9.913E+00	4.231E+00	1.180E+03	7.930E-02
2068	2.559E+02	1.398E+05	9.391E+00	4.008E+00	1.118E+03	7.513E-02
2069	2.424E+02	1.324E+05	8.898E+00	3.797E+00	1.059E+03	7.118E-02
2070	2.297E+02	1.255E+05	8.430E+00	3.598E+00	1.004E+03	6.744E-02
2071	2.176E+02	1.189E+05	7.987E+00	3.409E+00	9.510E+02	6.390E-02
2072	2.062E+02	1.126E+05	7.567E+00	3.230E+00	9.010E+02	6.054E-02
2073	1.953E+02	1.067E+05	7.169E+00	3.060E+00	8.536E+02	5.735E-02
2074	1.850E+02	1.011E+05	6.792E+00	2.899E+00	8.087E+02	5.434E-02
2075	1.753E+02	9.578E+04	6.435E+00	2.747E+00	7.662E+02	5.148E-02
2076	1.661E+02	9.074E+04	6.097E+00	2.602E+00	7.259E+02	4.878E-02
2077	1.574E+02	8.597E+04	5.777E+00	2.465E+00	6.878E+02	4.621E-02
2078	1.491E+02	8.145E+04	5.473E+00	2.336E+00	6.516E+02	4.378E-02
2079	1.413E+02	7.717E+04	5.185E+00	2.213E+00	6.174E+02	4.148E-02
2080	1.338E+02	7.312E+04	4.913E+00	2.097E+00	5.849E+02	3.930E-02
2081	1.268E+02	6.927E+04	4.654E+00	1.986E+00	5.542E+02	3.723E-02
2082	1.201E+02	6.563E+04	4.410E+00	1.882E+00	5.250E+02	3.528E-02
2083	1.138E+02	6.218E+04	4.178E+00	1.783E+00	4.974E+02	3.342E-02
2084	1.078E+02	5.891E+04	3.958E+00	1.689E+00	4.713E+02	3.167E-02
2085	1.022E+02	5.581E+04	3.750E+00	1.601E+00	4.465E+02	3.000E-02
2086	9.680E+01	5.288E+04	3.553E+00	1.516E+00	4.230E+02	2.842E-02
2087	9.171E+01	5.010E+04	3.366E+00	1.437E+00	4.008E+02	2.693E-02
2088	8.689E+01	4.747E+04	3.189E+00	1.361E+00	3.797E+02	2.551E-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)
2089	8.232E+01	4.497E+04	3.022E+00	1.290E+00	3.598E+02	2.417E-02
2090	7.799E+01	4.261E+04	2.863E+00	1.222E+00	3.409E+02	2.290E-02
2091	7.389E+01	4.037E+04	2.712E+00	1.158E+00	3.229E+02	2.170E-02
2092	7.001E+01	3.825E+04	2.570E+00	1.097E+00	3.060E+02	2.056E-02
2093	6.633E+01	3.624E+04	2.435E+00	1.039E+00	2.899E+02	1.948E-02
2094	6.284E+01	3.433E+04	2.307E+00	9.845E-01	2.746E+02	1.845E-02
2095	5.954E+01	3.253E+04	2.185E+00	9.327E-01	2.602E+02	1.748E-02
2096	5.641E+01	3.082E+04	2.071E+00	8.837E-01	2.465E+02	1.656E-02
2097	5.344E+01	2.920E+04	1.962E+00	8.372E-01	2.336E+02	1.569E-02
2098	5.063E+01	2.766E+04	1.859E+00	7.932E-01	2.213E+02	1.487E-02
2099	4.797E+01	2.621E+04	1.761E+00	7.515E-01	2.097E+02	1.409E-02
2100	4.545E+01	2.483E+04	1.668E+00	7.120E-01	1.986E+02	1.335E-02
2101	4.306E+01	2.352E+04	1.581E+00	6.746E-01	1.882E+02	1.264E-02
2102	4.080E+01	2.229E+04	1.498E+00	6.391E-01	1.783E+02	1.198E-02
2103	3.865E+01	2.112E+04	1.419E+00	6.055E-01	1.689E+02	1.135E-02
2104	3.662E+01	2.001E+04	1.344E+00	5.737E-01	1.600E+02	1.075E-02
2105	3.470E+01	1.895E+04	1.274E+00	5.435E-01	1.516E+02	1.019E-02
2106	3.287E+01	1.796E+04	1.207E+00	5.150E-01	1.437E+02	9.653E-03
2107	3.114E+01	1.701E+04	1.143E+00	4.879E-01	1.361E+02	9.145E-03
2108	2.951E+01	1.612E+04	1.083E+00	4.622E-01	1.290E+02	8.665E-03
2109	2.796E+01	1.527E+04	1.026E+00	4.379E-01	1.222E+02	8.209E-03
2110	2.649E+01	1.447E+04	9.722E-01	4.149E-01	1.158E+02	7.778E-03
2111	2.509E+01	1.371E+04	9.211E-01	3.931E-01	1.097E+02	7.369E-03
2112	2.377E+01	1.299E+04	8.727E-01	3.724E-01	1.039E+02	6.981E-03
2113	2.252E+01	1.231E+04	8.268E-01	3.529E-01	9.844E+01	6.614E-03
2114	2.134E+01	1.166E+04	7.833E-01	3.343E-01	9.327E+01	6.267E-03
2115	2.022E+01	1.105E+04	7.422E-01	3.167E-01	8.837E+01	5.937E-03
2116	1.916E+01	1.046E+04	7.031E-01	3.001E-01	8.372E+01	5.625E-03
2117	1.815E+01	9.915E+03	6.662E-01	2.843E-01	7.932E+01	5.329E-03
2118	1.720E+01	9.394E+03	6.312E-01	2.694E-01	7.515E+01	5.049E-03
2119	1.629E+01	8.900E+03	5.980E-01	2.552E-01	7.120E+01	4.784E-03
2120	1.543E+01	8.432E+03	5.665E-01	2.418E-01	6.746E+01	4.532E-03
2121	1.462E+01	7.989E+03	5.368E-01	2.291E-01	6.391E+01	4.294E-03
2122	1.385E+01	7.569E+03	5.085E-01	2.170E-01	6.055E+01	4.068E-03
2123	1.313E+01	7.171E+03	4.818E-01	2.056E-01	5.737E+01	3.855E-03
2124	1.244E+01	6.794E+03	4.565E-01	1.948E-01	5.435E+01	3.652E-03
2125	1.178E+01	6.437E+03	4.325E-01	1.846E-01	5.149E+01	3.460E-03
2126	1.116E+01	6.098E+03	4.098E-01	1.749E-01	4.879E+01	3.278E-03
2127	1.058E+01	5.778E+03	3.882E-01	1.657E-01	4.622E+01	3.106E-03
2128	1.002E+01	5.474E+03	3.678E-01	1.570E-01	4.379E+01	2.942E-03



Summary Report

Landfill Name or Identifier: Dispersion atmosphérique - LET Neuville

Date: 21 juillet 2008

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

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

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)

$t_{i,j}$ = 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	2009	
Landfill Closure Year (with 80-year limit)	2010	
Actual Closure Year (without limit)	2010	
Have Model Calculate Closure Year?	No	
Waste Design Capacity		<i>megagrams</i>

MODEL PARAMETERS

Methane Generation Rate, k	0.054	<i>year⁻¹</i>
Potential Methane Generation Capacity, L ₀	130	<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)
2009	40 000	44 000	0	0
2010	0	0	40 000	44 000
2011	0	0	40 000	44 000
2012	0	0	40 000	44 000
2013	0	0	40 000	44 000
2014	0	0	40 000	44 000
2015	0	0	40 000	44 000
2016	0	0	40 000	44 000
2017	0	0	40 000	44 000
2018	0	0	40 000	44 000
2019	0	0	40 000	44 000
2020	0	0	40 000	44 000
2021	0	0	40 000	44 000
2022	0	0	40 000	44 000
2023	0	0	40 000	44 000
2024	0	0	40 000	44 000
2025	0	0	40 000	44 000
2026	0	0	40 000	44 000
2027	0	0	40 000	44 000
2028	0	0	40 000	44 000
2029	0	0	40 000	44 000
2030	0	0	40 000	44 000
2031	0	0	40 000	44 000
2032	0	0	40 000	44 000
2033	0	0	40 000	44 000
2034	0	0	40 000	44 000
2035	0	0	40 000	44 000
2036	0	0	40 000	44 000
2037	0	0	40 000	44 000
2038	0	0	40 000	44 000
2039	0	0	40 000	44 000
2040	0	0	40 000	44 000
2041	0	0	40 000	44 000
2042	0	0	40 000	44 000
2043	0	0	40 000	44 000
2044	0	0	40 000	44 000
2045	0	0	40 000	44 000
2046	0	0	40 000	44 000
2047	0	0	40 000	44 000
2048	0	0	40 000	44 000

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2049	0	0	40 000	44 000
2050	0	0	40 000	44 000
2051	0	0	40 000	44 000
2052	0	0	40 000	44 000
2053	0	0	40 000	44 000
2054	0	0	40 000	44 000
2055	0	0	40 000	44 000
2056	0	0	40 000	44 000
2057	0	0	40 000	44 000
2058	0	0	40 000	44 000
2059	0	0	40 000	44 000
2060	0	0	40 000	44 000
2061	0	0	40 000	44 000
2062	0	0	40 000	44 000
2063	0	0	40 000	44 000
2064	0	0	40 000	44 000
2065	0	0	40 000	44 000
2066	0	0	40 000	44 000
2067	0	0	40 000	44 000
2068	0	0	40 000	44 000
2069	0	0	40 000	44 000
2070	0	0	40 000	44 000
2071	0	0	40 000	44 000
2072	0	0	40 000	44 000
2073	0	0	40 000	44 000
2074	0	0	40 000	44 000
2075	0	0	40 000	44 000
2076	0	0	40 000	44 000
2077	0	0	40 000	44 000
2078	0	0	40 000	44 000
2079	0	0	40 000	44 000
2080	0	0	40 000	44 000
2081	0	0	40 000	44 000
2082	0	0	40 000	44 000
2083	0	0	40 000	44 000
2084	0	0	40 000	44 000
2085	0	0	40 000	44 000
2086	0	0	40 000	44 000
2087	0	0	40 000	44 000
2088	0	0	40 000	44 000

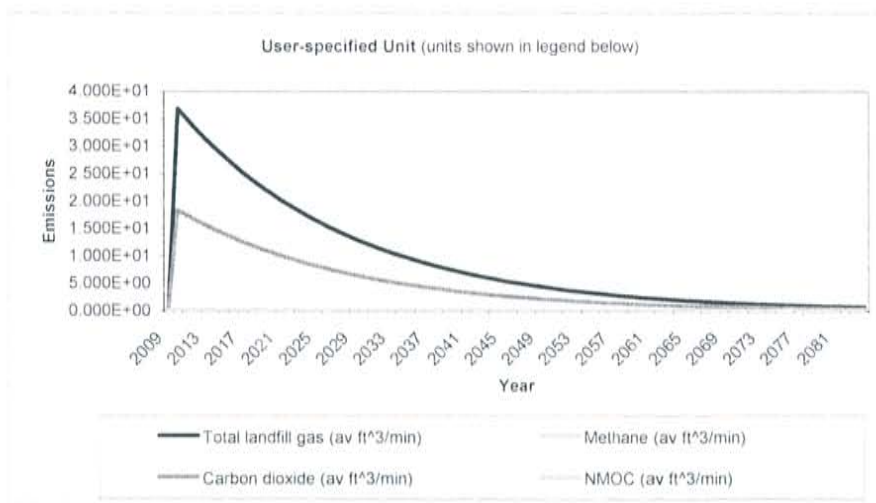
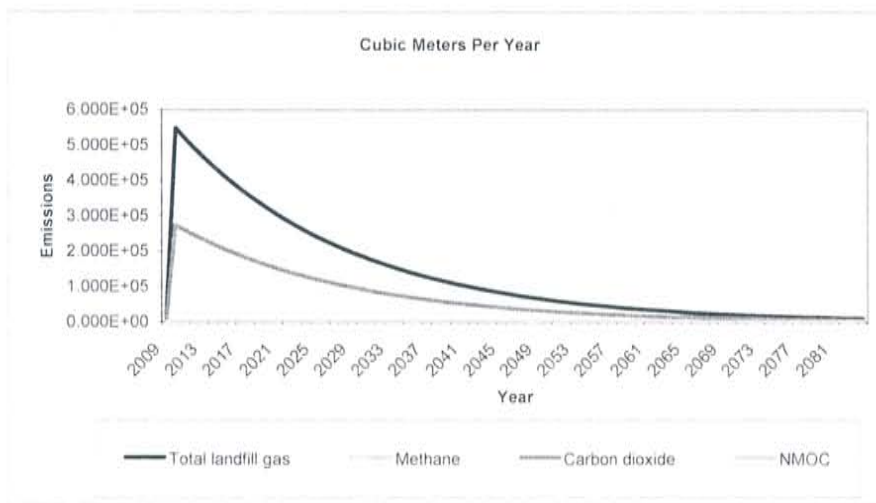
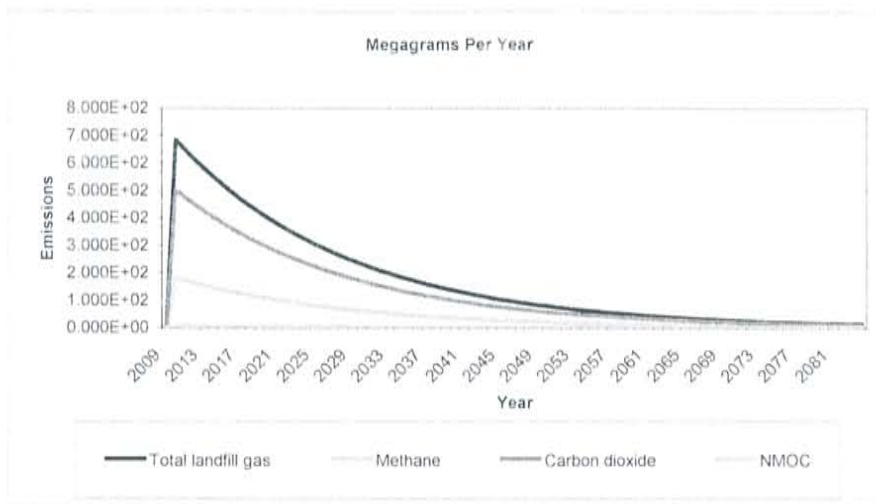
Pollutant Parameters

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		

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		

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)
2009	0	0	0	0	0	0
2010	6.846E+02	5.482E+05	3.683E+01	1.829E+02	2.741E+05	1.842E+01
2011	6.486E+02	5.194E+05	3.490E+01	1.732E+02	2.597E+05	1.745E+01
2012	6.145E+02	4.921E+05	3.306E+01	1.641E+02	2.460E+05	1.653E+01
2013	5.822E+02	4.662E+05	3.132E+01	1.555E+02	2.331E+05	1.566E+01
2014	5.516E+02	4.417E+05	2.968E+01	1.473E+02	2.208E+05	1.484E+01
2015	5.226E+02	4.185E+05	2.812E+01	1.396E+02	2.092E+05	1.406E+01
2016	4.951E+02	3.965E+05	2.664E+01	1.323E+02	1.982E+05	1.332E+01
2017	4.691E+02	3.756E+05	2.524E+01	1.253E+02	1.878E+05	1.262E+01
2018	4.444E+02	3.559E+05	2.391E+01	1.187E+02	1.779E+05	1.196E+01
2019	4.211E+02	3.372E+05	2.265E+01	1.125E+02	1.686E+05	1.133E+01
2020	3.989E+02	3.195E+05	2.146E+01	1.066E+02	1.597E+05	1.073E+01
2021	3.780E+02	3.027E+05	2.034E+01	1.010E+02	1.513E+05	1.017E+01
2022	3.581E+02	2.867E+05	1.927E+01	9.565E+01	1.434E+05	9.633E+00
2023	3.393E+02	2.717E+05	1.825E+01	9.062E+01	1.358E+05	9.127E+00
2024	3.214E+02	2.574E+05	1.729E+01	8.586E+01	1.287E+05	8.647E+00
2025	3.045E+02	2.439E+05	1.639E+01	8.135E+01	1.219E+05	8.193E+00
2026	2.885E+02	2.310E+05	1.552E+01	7.707E+01	1.155E+05	7.762E+00
2027	2.734E+02	2.189E+05	1.471E+01	7.302E+01	1.094E+05	7.354E+00
2028	2.590E+02	2.074E+05	1.393E+01	6.918E+01	1.037E+05	6.967E+00
2029	2.454E+02	1.965E+05	1.320E+01	6.554E+01	9.824E+04	6.601E+00
2030	2.325E+02	1.862E+05	1.251E+01	6.210E+01	9.308E+04	6.254E+00
2031	2.203E+02	1.764E+05	1.185E+01	5.883E+01	8.819E+04	5.925E+00
2032	2.087E+02	1.671E+05	1.123E+01	5.574E+01	8.355E+04	5.614E+00
2033	1.977E+02	1.583E+05	1.064E+01	5.281E+01	7.916E+04	5.319E+00
2034	1.873E+02	1.500E+05	1.008E+01	5.003E+01	7.500E+04	5.039E+00
2035	1.775E+02	1.421E+05	9.548E+00	4.740E+01	7.106E+04	4.774E+00
2036	1.681E+02	1.346E+05	9.046E+00	4.491E+01	6.732E+04	4.523E+00
2037	1.593E+02	1.276E+05	8.571E+00	4.255E+01	6.378E+04	4.285E+00
2038	1.509E+02	1.209E+05	8.120E+00	4.031E+01	6.043E+04	4.060E+00
2039	1.430E+02	1.145E+05	7.694E+00	3.820E+01	5.725E+04	3.847E+00
2040	1.355E+02	1.085E+05	7.289E+00	3.619E+01	5.424E+04	3.645E+00
2041	1.284E+02	1.028E+05	6.906E+00	3.429E+01	5.139E+04	3.453E+00
2042	1.216E+02	9.738E+04	6.543E+00	3.248E+01	4.869E+04	3.271E+00
2043	1.152E+02	9.226E+04	6.199E+00	3.078E+01	4.613E+04	3.099E+00
2044	1.092E+02	8.741E+04	5.873E+00	2.916E+01	4.371E+04	2.937E+00
2045	1.034E+02	8.282E+04	5.564E+00	2.762E+01	4.141E+04	2.782E+00
2046	9.798E+01	7.846E+04	5.272E+00	2.617E+01	3.923E+04	2.636E+00
2047	9.283E+01	7.434E+04	4.995E+00	2.480E+01	3.717E+04	2.497E+00
2048	8.795E+01	7.043E+04	4.732E+00	2.349E+01	3.521E+04	2.366E+00
2049	8.333E+01	6.673E+04	4.483E+00	2.226E+01	3.336E+04	2.242E+00
2050	7.895E+01	6.322E+04	4.248E+00	2.109E+01	3.161E+04	2.124E+00
2051	7.480E+01	5.990E+04	4.024E+00	1.998E+01	2.995E+04	2.012E+00
2052	7.087E+01	5.675E+04	3.813E+00	1.893E+01	2.837E+04	1.906E+00
2053	6.714E+01	5.376E+04	3.612E+00	1.793E+01	2.688E+04	1.806E+00
2054	6.361E+01	5.094E+04	3.423E+00	1.699E+01	2.547E+04	1.711E+00
2055	6.027E+01	4.826E+04	3.243E+00	1.610E+01	2.413E+04	1.621E+00
2056	5.710E+01	4.572E+04	3.072E+00	1.525E+01	2.286E+04	1.536E+00
2057	5.410E+01	4.332E+04	2.911E+00	1.445E+01	2.166E+04	1.455E+00
2058	5.125E+01	4.104E+04	2.758E+00	1.369E+01	2.052E+04	1.379E+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)
2059	4.856E+01	3.889E+04	2.613E+00	1.297E+01	1.944E+04	1.306E+00
2060	4.601E+01	3.684E+04	2.475E+00	1.229E+01	1.842E+04	1.238E+00
2061	4.359E+01	3.490E+04	2.345E+00	1.164E+01	1.745E+04	1.173E+00
2062	4.130E+01	3.307E+04	2.222E+00	1.103E+01	1.653E+04	1.111E+00
2063	3.913E+01	3.133E+04	2.105E+00	1.045E+01	1.567E+04	1.053E+00
2064	3.707E+01	2.968E+04	1.994E+00	9.902E+00	1.484E+04	9.972E-01
2065	3.512E+01	2.812E+04	1.890E+00	9.381E+00	1.406E+04	9.448E-01
2066	3.328E+01	2.665E+04	1.790E+00	8.888E+00	1.332E+04	8.951E-01
2067	3.153E+01	2.524E+04	1.696E+00	8.421E+00	1.262E+04	8.481E-01
2068	2.987E+01	2.392E+04	1.607E+00	7.978E+00	1.196E+04	8.035E-01
2069	2.830E+01	2.266E+04	1.523E+00	7.559E+00	1.133E+04	7.613E-01
2070	2.681E+01	2.147E+04	1.442E+00	7.162E+00	1.073E+04	7.212E-01
2071	2.540E+01	2.034E+04	1.367E+00	6.785E+00	1.017E+04	6.833E-01
2072	2.407E+01	1.927E+04	1.295E+00	6.428E+00	9.636E+03	6.474E-01
2073	2.280E+01	1.826E+04	1.227E+00	6.090E+00	9.129E+03	6.134E-01
2074	2.160E+01	1.730E+04	1.162E+00	5.770E+00	8.649E+03	5.811E-01
2075	2.047E+01	1.639E+04	1.101E+00	5.467E+00	8.194E+03	5.506E-01
2076	1.939E+01	1.553E+04	1.043E+00	5.180E+00	7.764E+03	5.216E-01
2077	1.837E+01	1.471E+04	9.884E-01	4.907E+00	7.356E+03	4.942E-01
2078	1.741E+01	1.394E+04	9.365E-01	4.649E+00	6.969E+03	4.682E-01
2079	1.649E+01	1.321E+04	8.873E-01	4.405E+00	6.603E+03	4.436E-01
2080	1.562E+01	1.251E+04	8.406E-01	4.173E+00	6.256E+03	4.203E-01
2081	1.480E+01	1.185E+04	7.964E-01	3.954E+00	5.927E+03	3.982E-01
2082	1.402E+01	1.123E+04	7.546E-01	3.746E+00	5.615E+03	3.773E-01
2083	1.329E+01	1.064E+04	7.149E-01	3.549E+00	5.320E+03	3.574E-01
2084	1.259E+01	1.008E+04	6.773E-01	3.363E+00	5.040E+03	3.387E-01
2085	1.193E+01	9.551E+03	6.417E-01	3.186E+00	4.775E+03	3.209E-01
2086	1.130E+01	9.049E+03	6.080E-01	3.018E+00	4.524E+03	3.040E-01
2087	1.071E+01	8.573E+03	5.760E-01	2.860E+00	4.286E+03	2.880E-01
2088	1.014E+01	8.122E+03	5.457E-01	2.709E+00	4.061E+03	2.729E-01
2089	9.610E+00	7.695E+03	5.170E-01	2.567E+00	3.848E+03	2.585E-01
2090	9.105E+00	7.291E+03	4.899E-01	2.432E+00	3.645E+03	2.449E-01
2091	8.626E+00	6.908E+03	4.641E-01	2.304E+00	3.454E+03	2.321E-01
2092	8.173E+00	6.544E+03	4.397E-01	2.183E+00	3.272E+03	2.199E-01
2093	7.743E+00	6.200E+03	4.166E-01	2.068E+00	3.100E+03	2.083E-01
2094	7.336E+00	5.874E+03	3.947E-01	1.960E+00	2.937E+03	1.974E-01
2095	6.950E+00	5.566E+03	3.740E-01	1.857E+00	2.783E+03	1.870E-01
2096	6.585E+00	5.273E+03	3.543E-01	1.759E+00	2.637E+03	1.771E-01
2097	6.239E+00	4.996E+03	3.357E-01	1.666E+00	2.498E+03	1.678E-01
2098	5.911E+00	4.733E+03	3.180E-01	1.579E+00	2.367E+03	1.590E-01
2099	5.600E+00	4.484E+03	3.013E-01	1.496E+00	2.242E+03	1.507E-01
2100	5.306E+00	4.249E+03	2.855E-01	1.417E+00	2.124E+03	1.427E-01
2101	5.027E+00	4.025E+03	2.705E-01	1.343E+00	2.013E+03	1.352E-01
2102	4.763E+00	3.814E+03	2.562E-01	1.272E+00	1.907E+03	1.281E-01
2103	4.512E+00	3.613E+03	2.428E-01	1.205E+00	1.807E+03	1.214E-01
2104	4.275E+00	3.423E+03	2.300E-01	1.142E+00	1.712E+03	1.150E-01
2105	4.050E+00	3.243E+03	2.179E-01	1.082E+00	1.622E+03	1.090E-01
2106	3.837E+00	3.073E+03	2.065E-01	1.025E+00	1.536E+03	1.032E-01
2107	3.636E+00	2.911E+03	1.956E-01	9.711E-01	1.456E+03	9.781E-02
2108	3.445E+00	2.758E+03	1.853E-01	9.201E-01	1.379E+03	9.266E-02
2109	3.264E+00	2.613E+03	1.756E-01	8.717E-01	1.307E+03	8.779E-02

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)
2110	3.092E+00	2.476E+03	1.664E-01	8.259E-01	1.238E+03	8.318E-02
2111	2.929E+00	2.346E+03	1.576E-01	7.825E-01	1.173E+03	7.881E-02
2112	2.775E+00	2.222E+03	1.493E-01	7.414E-01	1.111E+03	7.466E-02
2113	2.630E+00	2.106E+03	1.415E-01	7.024E-01	1.053E+03	7.074E-02
2114	2.491E+00	1.995E+03	1.340E-01	6.655E-01	9.975E+02	6.702E-02
2115	2.360E+00	1.890E+03	1.270E-01	6.305E-01	9.450E+02	6.350E-02
2116	2.236E+00	1.791E+03	1.203E-01	5.973E-01	8.954E+02	6.016E-02
2117	2.119E+00	1.697E+03	1.140E-01	5.659E-01	8.483E+02	5.700E-02
2118	2.007E+00	1.607E+03	1.080E-01	5.362E-01	8.037E+02	5.400E-02
2119	1.902E+00	1.523E+03	1.023E-01	5.080E-01	7.614E+02	5.116E-02
2120	1.802E+00	1.443E+03	9.694E-02	4.813E-01	7.214E+02	4.847E-02
2121	1.707E+00	1.367E+03	9.185E-02	4.560E-01	6.835E+02	4.592E-02
2122	1.617E+00	1.295E+03	8.702E-02	4.320E-01	6.476E+02	4.351E-02
2123	1.532E+00	1.227E+03	8.245E-02	4.093E-01	6.135E+02	4.122E-02
2124	1.452E+00	1.163E+03	7.811E-02	3.878E-01	5.813E+02	3.906E-02
2125	1.375E+00	1.101E+03	7.401E-02	3.674E-01	5.507E+02	3.700E-02
2126	1.303E+00	1.044E+03	7.011E-02	3.481E-01	5.218E+02	3.506E-02
2127	1.235E+00	9.887E+02	6.643E-02	3.298E-01	4.943E+02	3.321E-02
2128	1.170E+00	9.367E+02	6.294E-02	3.125E-01	4.684E+02	3.147E-02
2129	1.108E+00	8.875E+02	5.963E-02	2.960E-01	4.437E+02	2.981E-02
2130	1.050E+00	8.408E+02	5.649E-02	2.805E-01	4.204E+02	2.825E-02
2131	9.948E-01	7.966E+02	5.352E-02	2.657E-01	3.983E+02	2.676E-02
2132	9.425E-01	7.547E+02	5.071E-02	2.518E-01	3.774E+02	2.536E-02
2133	8.930E-01	7.151E+02	4.804E-02	2.385E-01	3.575E+02	2.402E-02
2134	8.460E-01	6.775E+02	4.552E-02	2.260E-01	3.387E+02	2.276E-02
2135	8.016E-01	6.419E+02	4.313E-02	2.141E-01	3.209E+02	2.156E-02
2136	7.594E-01	6.081E+02	4.086E-02	2.029E-01	3.041E+02	2.043E-02
2137	7.195E-01	5.761E+02	3.871E-02	1.922E-01	2.881E+02	1.936E-02
2138	6.817E-01	5.459E+02	3.668E-02	1.821E-01	2.729E+02	1.834E-02
2139	6.459E-01	5.172E+02	3.475E-02	1.725E-01	2.586E+02	1.737E-02
2140	6.119E-01	4.900E+02	3.292E-02	1.634E-01	2.450E+02	1.646E-02
2141	5.797E-01	4.642E+02	3.119E-02	1.549E-01	2.321E+02	1.560E-02
2142	5.493E-01	4.398E+02	2.955E-02	1.467E-01	2.199E+02	1.478E-02
2143	5.204E-01	4.167E+02	2.800E-02	1.390E-01	2.083E+02	1.400E-02
2144	4.930E-01	3.948E+02	2.653E-02	1.317E-01	1.974E+02	1.326E-02
2145	4.671E-01	3.740E+02	2.513E-02	1.248E-01	1.870E+02	1.257E-02
2146	4.426E-01	3.544E+02	2.381E-02	1.182E-01	1.772E+02	1.191E-02
2147	4.193E-01	3.357E+02	2.256E-02	1.120E-01	1.679E+02	1.128E-02
2148	3.973E-01	3.181E+02	2.137E-02	1.061E-01	1.590E+02	1.069E-02
2149	3.764E-01	3.014E+02	2.025E-02	1.005E-01	1.507E+02	1.012E-02

Results (Continued)

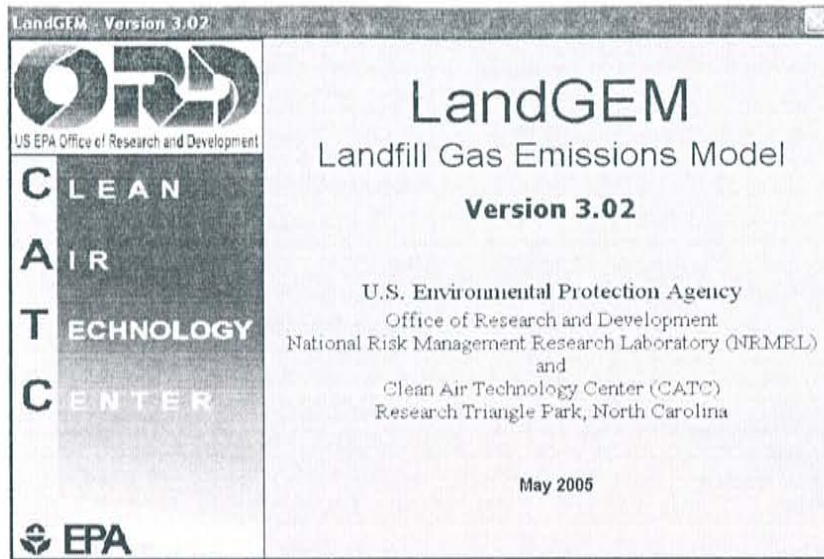
Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2009	0	0	0	0	0	0
2010	5.017E+02	2.741E+05	1.842E+01	7.860E+00	2.193E+03	1.473E-01
2011	4.754E+02	2.597E+05	1.745E+01	7.447E+00	2.077E+03	1.396E-01
2012	4.504E+02	2.460E+05	1.653E+01	7.055E+00	1.968E+03	1.322E-01
2013	4.267E+02	2.331E+05	1.566E+01	6.684E+00	1.865E+03	1.253E-01
2014	4.043E+02	2.208E+05	1.484E+01	6.333E+00	1.767E+03	1.187E-01
2015	3.830E+02	2.092E+05	1.406E+01	6.000E+00	1.674E+03	1.125E-01
2016	3.629E+02	1.982E+05	1.332E+01	5.685E+00	1.586E+03	1.066E-01
2017	3.438E+02	1.878E+05	1.262E+01	5.386E+00	1.503E+03	1.010E-01
2018	3.257E+02	1.779E+05	1.196E+01	5.103E+00	1.424E+03	9.565E-02
2019	3.086E+02	1.686E+05	1.133E+01	4.834E+00	1.349E+03	9.062E-02
2020	2.924E+02	1.597E+05	1.073E+01	4.580E+00	1.278E+03	8.586E-02
2021	2.770E+02	1.513E+05	1.017E+01	4.339E+00	1.211E+03	8.134E-02
2022	2.624E+02	1.434E+05	9.633E+00	4.111E+00	1.147E+03	7.707E-02
2023	2.487E+02	1.358E+05	9.127E+00	3.895E+00	1.087E+03	7.302E-02
2024	2.356E+02	1.287E+05	8.647E+00	3.690E+00	1.030E+03	6.918E-02
2025	2.232E+02	1.219E+05	8.193E+00	3.496E+00	9.755E+02	6.554E-02
2026	2.115E+02	1.155E+05	7.762E+00	3.313E+00	9.242E+02	6.210E-02
2027	2.003E+02	1.094E+05	7.354E+00	3.139E+00	8.756E+02	5.883E-02
2028	1.898E+02	1.037E+05	6.967E+00	2.974E+00	8.296E+02	5.574E-02
2029	1.798E+02	9.824E+04	6.601E+00	2.817E+00	7.860E+02	5.281E-02
2030	1.704E+02	9.308E+04	6.254E+00	2.669E+00	7.446E+02	5.003E-02
2031	1.614E+02	8.819E+04	5.925E+00	2.529E+00	7.055E+02	4.740E-02
2032	1.529E+02	8.355E+04	5.614E+00	2.396E+00	6.684E+02	4.491E-02
2033	1.449E+02	7.916E+04	5.319E+00	2.270E+00	6.333E+02	4.255E-02
2034	1.373E+02	7.500E+04	5.039E+00	2.151E+00	6.000E+02	4.031E-02
2035	1.301E+02	7.106E+04	4.774E+00	2.038E+00	5.684E+02	3.819E-02
2036	1.232E+02	6.732E+04	4.523E+00	1.930E+00	5.386E+02	3.619E-02
2037	1.168E+02	6.378E+04	4.285E+00	1.829E+00	5.103E+02	3.428E-02
2038	1.106E+02	6.043E+04	4.060E+00	1.733E+00	4.834E+02	3.248E-02
2039	1.048E+02	5.725E+04	3.847E+00	1.642E+00	4.580E+02	3.077E-02
2040	9.929E+01	5.424E+04	3.645E+00	1.555E+00	4.339E+02	2.916E-02
2041	9.407E+01	5.139E+04	3.453E+00	1.474E+00	4.111E+02	2.762E-02
2042	8.913E+01	4.869E+04	3.271E+00	1.396E+00	3.895E+02	2.617E-02
2043	8.444E+01	4.613E+04	3.099E+00	1.323E+00	3.690E+02	2.480E-02
2044	8.000E+01	4.371E+04	2.937E+00	1.253E+00	3.496E+02	2.349E-02
2045	7.580E+01	4.141E+04	2.782E+00	1.187E+00	3.313E+02	2.226E-02
2046	7.181E+01	3.923E+04	2.636E+00	1.125E+00	3.138E+02	2.109E-02
2047	6.804E+01	3.717E+04	2.497E+00	1.066E+00	2.973E+02	1.998E-02
2048	6.446E+01	3.521E+04	2.366E+00	1.010E+00	2.817E+02	1.893E-02
2049	6.107E+01	3.336E+04	2.242E+00	9.567E-01	2.669E+02	1.793E-02
2050	5.786E+01	3.161E+04	2.124E+00	9.064E-01	2.529E+02	1.699E-02
2051	5.482E+01	2.995E+04	2.012E+00	8.588E-01	2.396E+02	1.610E-02
2052	5.194E+01	2.837E+04	1.906E+00	8.136E-01	2.270E+02	1.525E-02
2053	4.921E+01	2.688E+04	1.806E+00	7.709E-01	2.151E+02	1.445E-02
2054	4.662E+01	2.547E+04	1.711E+00	7.303E-01	2.038E+02	1.369E-02
2055	4.417E+01	2.413E+04	1.621E+00	6.920E-01	1.930E+02	1.297E-02
2056	4.185E+01	2.286E+04	1.536E+00	6.556E-01	1.829E+02	1.229E-02
2057	3.965E+01	2.166E+04	1.455E+00	6.211E-01	1.733E+02	1.164E-02
2058	3.756E+01	2.052E+04	1.379E+00	5.885E-01	1.642E+02	1.103E-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)
2059	3.559E+01	1.944E+04	1.306E+00	5.575E-01	1.555E+02	1.045E-02
2060	3.372E+01	1.842E+04	1.238E+00	5.282E-01	1.474E+02	9.901E-03
2061	3.195E+01	1.745E+04	1.173E+00	5.005E-01	1.396E+02	9.381E-03
2062	3.027E+01	1.653E+04	1.111E+00	4.741E-01	1.323E+02	8.888E-03
2063	2.868E+01	1.567E+04	1.053E+00	4.492E-01	1.253E+02	8.421E-03
2064	2.717E+01	1.484E+04	9.972E-01	4.256E-01	1.187E+02	7.978E-03
2065	2.574E+01	1.406E+04	9.448E-01	4.032E-01	1.125E+02	7.558E-03
2066	2.439E+01	1.332E+04	8.951E-01	3.820E-01	1.066E+02	7.161E-03
2067	2.311E+01	1.262E+04	8.481E-01	3.620E-01	1.010E+02	6.785E-03
2068	2.189E+01	1.196E+04	8.035E-01	3.429E-01	9.567E+01	6.428E-03
2069	2.074E+01	1.133E+04	7.613E-01	3.249E-01	9.064E+01	6.090E-03
2070	1.965E+01	1.073E+04	7.212E-01	3.078E-01	8.588E+01	5.770E-03
2071	1.862E+01	1.017E+04	6.833E-01	2.916E-01	8.136E+01	5.467E-03
2072	1.764E+01	9.636E+03	6.474E-01	2.763E-01	7.708E+01	5.179E-03
2073	1.671E+01	9.129E+03	6.134E-01	2.618E-01	7.303E+01	4.907E-03
2074	1.583E+01	8.649E+03	5.811E-01	2.480E-01	6.919E+01	4.649E-03
2075	1.500E+01	8.194E+03	5.506E-01	2.350E-01	6.556E+01	4.405E-03
2076	1.421E+01	7.764E+03	5.216E-01	2.226E-01	6.211E+01	4.173E-03
2077	1.346E+01	7.356E+03	4.942E-01	2.109E-01	5.884E+01	3.954E-03
2078	1.276E+01	6.969E+03	4.682E-01	1.998E-01	5.575E+01	3.746E-03
2079	1.209E+01	6.603E+03	4.436E-01	1.893E-01	5.282E+01	3.549E-03
2080	1.145E+01	6.256E+03	4.203E-01	1.794E-01	5.004E+01	3.362E-03
2081	1.085E+01	5.927E+03	3.982E-01	1.700E-01	4.741E+01	3.186E-03
2082	1.028E+01	5.615E+03	3.773E-01	1.610E-01	4.492E+01	3.018E-03
2083	9.738E+00	5.320E+03	3.574E-01	1.526E-01	4.256E+01	2.860E-03
2084	9.226E+00	5.040E+03	3.387E-01	1.445E-01	4.032E+01	2.709E-03
2085	8.741E+00	4.775E+03	3.209E-01	1.369E-01	3.820E+01	2.567E-03
2086	8.282E+00	4.524E+03	3.040E-01	1.297E-01	3.619E+01	2.432E-03
2087	7.846E+00	4.286E+03	2.880E-01	1.229E-01	3.429E+01	2.304E-03
2088	7.434E+00	4.061E+03	2.729E-01	1.165E-01	3.249E+01	2.183E-03
2089	7.043E+00	3.848E+03	2.585E-01	1.103E-01	3.078E+01	2.068E-03
2090	6.673E+00	3.645E+03	2.449E-01	1.045E-01	2.916E+01	1.959E-03
2091	6.322E+00	3.454E+03	2.321E-01	9.904E-02	2.763E+01	1.856E-03
2092	5.990E+00	3.272E+03	2.199E-01	9.383E-02	2.618E+01	1.759E-03
2093	5.675E+00	3.100E+03	2.083E-01	8.890E-02	2.480E+01	1.666E-03
2094	5.377E+00	2.937E+03	1.974E-01	8.423E-02	2.350E+01	1.579E-03
2095	5.094E+00	2.783E+03	1.870E-01	7.980E-02	2.226E+01	1.496E-03
2096	4.826E+00	2.637E+03	1.771E-01	7.560E-02	2.109E+01	1.417E-03
2097	4.572E+00	2.498E+03	1.678E-01	7.163E-02	1.998E+01	1.343E-03
2098	4.332E+00	2.367E+03	1.590E-01	6.786E-02	1.893E+01	1.272E-03
2099	4.104E+00	2.242E+03	1.507E-01	6.430E-02	1.794E+01	1.205E-03
2100	3.889E+00	2.124E+03	1.427E-01	6.092E-02	1.699E+01	1.142E-03
2101	3.684E+00	2.013E+03	1.352E-01	5.771E-02	1.610E+01	1.082E-03
2102	3.491E+00	1.907E+03	1.281E-01	5.468E-02	1.525E+01	1.025E-03
2103	3.307E+00	1.807E+03	1.214E-01	5.181E-02	1.445E+01	9.711E-04
2104	3.133E+00	1.712E+03	1.150E-01	4.908E-02	1.369E+01	9.200E-04
2105	2.968E+00	1.622E+03	1.090E-01	4.650E-02	1.297E+01	8.717E-04
2106	2.812E+00	1.536E+03	1.032E-01	4.406E-02	1.229E+01	8.259E-04
2107	2.665E+00	1.456E+03	9.781E-02	4.174E-02	1.165E+01	7.824E-04
2108	2.525E+00	1.379E+03	9.266E-02	3.955E-02	1.103E+01	7.413E-04
2109	2.392E+00	1.307E+03	8.779E-02	3.747E-02	1.045E+01	7.023E-04

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2110	2.266E+00	1.238E+03	8.318E-02	3.550E-02	9.904E+00	6.654E-04
2111	2.147E+00	1.173E+03	7.881E-02	3.363E-02	9.383E+00	6.304E-04
2112	2.034E+00	1.111E+03	7.466E-02	3.187E-02	8.890E+00	5.973E-04
2113	1.927E+00	1.053E+03	7.074E-02	3.019E-02	8.422E+00	5.659E-04
2114	1.826E+00	9.975E+02	6.702E-02	2.860E-02	7.980E+00	5.362E-04
2115	1.730E+00	9.450E+02	6.350E-02	2.710E-02	7.560E+00	5.080E-04
2116	1.639E+00	8.954E+02	6.016E-02	2.567E-02	7.163E+00	4.813E-04
2117	1.553E+00	8.483E+02	5.700E-02	2.433E-02	6.786E+00	4.560E-04
2118	1.471E+00	8.037E+02	5.400E-02	2.305E-02	6.430E+00	4.320E-04
2119	1.394E+00	7.614E+02	5.116E-02	2.184E-02	6.092E+00	4.093E-04
2120	1.321E+00	7.214E+02	4.847E-02	2.069E-02	5.771E+00	3.878E-04
2121	1.251E+00	6.835E+02	4.592E-02	1.960E-02	5.468E+00	3.674E-04
2122	1.185E+00	6.476E+02	4.351E-02	1.857E-02	5.181E+00	3.481E-04
2123	1.123E+00	6.135E+02	4.122E-02	1.759E-02	4.908E+00	3.298E-04
2124	1.064E+00	5.813E+02	3.906E-02	1.667E-02	4.650E+00	3.124E-04
2125	1.008E+00	5.507E+02	3.700E-02	1.579E-02	4.406E+00	2.960E-04
2126	9.551E-01	5.218E+02	3.506E-02	1.496E-02	4.174E+00	2.805E-04
2127	9.049E-01	4.943E+02	3.321E-02	1.418E-02	3.955E+00	2.657E-04
2128	8.573E-01	4.684E+02	3.147E-02	1.343E-02	3.747E+00	2.517E-04
2129	8.122E-01	4.437E+02	2.981E-02	1.272E-02	3.550E+00	2.385E-04
2130	7.696E-01	4.204E+02	2.825E-02	1.206E-02	3.363E+00	2.260E-04
2131	7.291E-01	3.983E+02	2.676E-02	1.142E-02	3.186E+00	2.141E-04
2132	6.908E-01	3.774E+02	2.536E-02	1.082E-02	3.019E+00	2.028E-04
2133	6.545E-01	3.575E+02	2.402E-02	1.025E-02	2.860E+00	1.922E-04
2134	6.201E-01	3.387E+02	2.276E-02	9.713E-03	2.710E+00	1.821E-04
2135	5.875E-01	3.209E+02	2.156E-02	9.203E-03	2.567E+00	1.725E-04
2136	5.566E-01	3.041E+02	2.043E-02	8.719E-03	2.432E+00	1.634E-04
2137	5.273E-01	2.881E+02	1.936E-02	8.261E-03	2.305E+00	1.548E-04
2138	4.996E-01	2.729E+02	1.834E-02	7.826E-03	2.183E+00	1.467E-04
2139	4.733E-01	2.586E+02	1.737E-02	7.415E-03	2.069E+00	1.390E-04
2140	4.485E-01	2.450E+02	1.646E-02	7.025E-03	1.960E+00	1.317E-04
2141	4.249E-01	2.321E+02	1.560E-02	6.656E-03	1.857E+00	1.248E-04
2142	4.025E-01	2.199E+02	1.478E-02	6.306E-03	1.759E+00	1.182E-04
2143	3.814E-01	2.083E+02	1.400E-02	5.975E-03	1.667E+00	1.120E-04
2144	3.613E-01	1.974E+02	1.326E-02	5.661E-03	1.579E+00	1.061E-04
2145	3.423E-01	1.870E+02	1.257E-02	5.363E-03	1.496E+00	1.005E-04
2146	3.243E-01	1.772E+02	1.191E-02	5.081E-03	1.418E+00	9.524E-05
2147	3.073E-01	1.679E+02	1.128E-02	4.814E-03	1.343E+00	9.024E-05
2148	2.911E-01	1.590E+02	1.069E-02	4.561E-03	1.272E+00	8.549E-05
2149	2.758E-01	1.507E+02	1.012E-02	4.321E-03	1.206E+00	8.100E-05



Summary Report

Landfill Name or Identifier: Dispersion atmosphérique - LET Neuville

Date: 21 juillet 2008

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/Mq)

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

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	2009	
Landfill Closure Year (with 80-year limit)	2046	
Actual Closure Year (without limit)	2046	
Have Model Calculate Closure Year?	No	
Waste Design Capacity		<i>megagrams</i>

MODEL PARAMETERS

Methane Generation Rate, k	0.054	<i>year⁻¹</i>
Potential Methane Generation Capacity, L ₀	130	<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)
2009	40 000	44 000	0	0
2010	75 000	82 500	40 000	44 000
2011	75 000	82 500	115 000	126 500
2012	75 000	82 500	190 000	209 000
2013	75 000	82 500	265 000	291 500
2014	75 000	82 500	340 000	374 000
2015	75 000	82 500	415 000	456 500
2016	75 000	82 500	490 000	539 000
2017	75 000	82 500	565 000	621 500
2018	75 000	82 500	640 000	704 000
2019	75 000	82 500	715 000	786 500
2020	75 000	82 500	790 000	869 000
2021	75 000	82 500	865 000	951 500
2022	75 000	82 500	940 000	1 034 000
2023	75 000	82 500	1 015 000	1 116 500
2024	75 000	82 500	1 090 000	1 199 000
2025	75 000	82 500	1 165 000	1 281 500
2026	75 000	82 500	1 240 000	1 364 000
2027	75 000	82 500	1 315 000	1 446 500
2028	75 000	82 500	1 390 000	1 529 000
2029	75 000	82 500	1 465 000	1 611 500
2030	75 000	82 500	1 540 000	1 694 000
2031	75 000	82 500	1 615 000	1 776 500
2032	75 000	82 500	1 690 000	1 859 000
2033	75 000	82 500	1 765 000	1 941 500
2034	75 000	82 500	1 840 000	2 024 000
2035	75 000	82 500	1 915 000	2 106 500
2036	75 000	82 500	1 990 000	2 189 000
2037	75 000	82 500	2 065 000	2 271 500
2038	75 000	82 500	2 140 000	2 354 000
2039	75 000	82 500	2 215 000	2 436 500
2040	75 000	82 500	2 290 000	2 519 000
2041	75 000	82 500	2 365 000	2 601 500
2042	75 000	82 500	2 440 000	2 684 000
2043	75 000	82 500	2 515 000	2 766 500
2044	75 000	82 500	2 590 000	2 849 000
2045	75 000	82 500	2 665 000	2 931 500
2046	75 000	82 500	2 740 000	3 014 000
2047	0	0	2 815 000	3 096 500
2048	0	0	2 815 000	3 096 500

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2049	0	0	2 815 000	3 096 500
2050	0	0	2 815 000	3 096 500
2051	0	0	2 815 000	3 096 500
2052	0	0	2 815 000	3 096 500
2053	0	0	2 815 000	3 096 500
2054	0	0	2 815 000	3 096 500
2055	0	0	2 815 000	3 096 500
2056	0	0	2 815 000	3 096 500
2057	0	0	2 815 000	3 096 500
2058	0	0	2 815 000	3 096 500
2059	0	0	2 815 000	3 096 500
2060	0	0	2 815 000	3 096 500
2061	0	0	2 815 000	3 096 500
2062	0	0	2 815 000	3 096 500
2063	0	0	2 815 000	3 096 500
2064	0	0	2 815 000	3 096 500
2065	0	0	2 815 000	3 096 500
2066	0	0	2 815 000	3 096 500
2067	0	0	2 815 000	3 096 500
2068	0	0	2 815 000	3 096 500
2069	0	0	2 815 000	3 096 500
2070	0	0	2 815 000	3 096 500
2071	0	0	2 815 000	3 096 500
2072	0	0	2 815 000	3 096 500
2073	0	0	2 815 000	3 096 500
2074	0	0	2 815 000	3 096 500
2075	0	0	2 815 000	3 096 500
2076	0	0	2 815 000	3 096 500
2077	0	0	2 815 000	3 096 500
2078	0	0	2 815 000	3 096 500
2079	0	0	2 815 000	3 096 500
2080	0	0	2 815 000	3 096 500
2081	0	0	2 815 000	3 096 500
2082	0	0	2 815 000	3 096 500
2083	0	0	2 815 000	3 096 500
2084	0	0	2 815 000	3 096 500
2085	0	0	2 815 000	3 096 500
2086	0	0	2 815 000	3 096 500
2087	0	0	2 815 000	3 096 500
2088	0	0	2 815 000	3 096 500

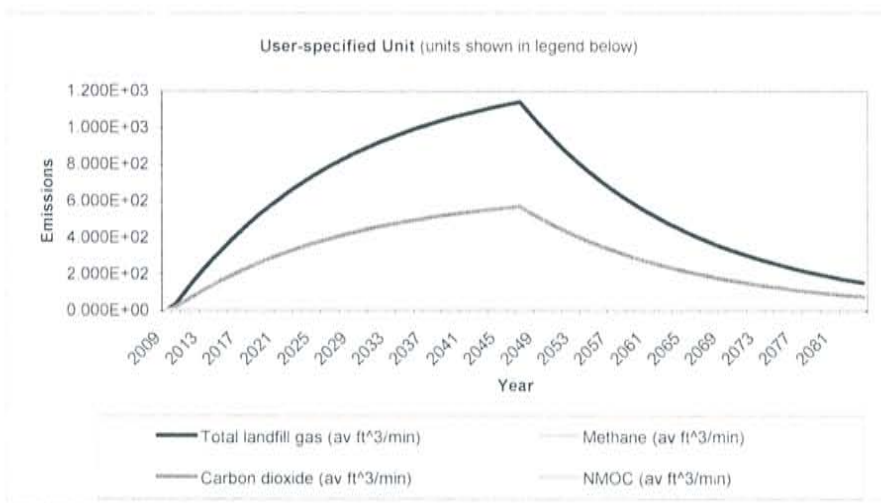
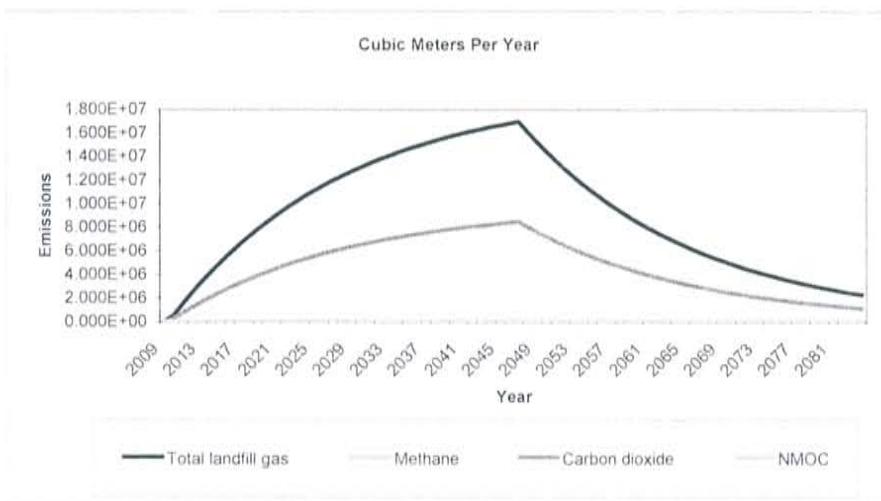
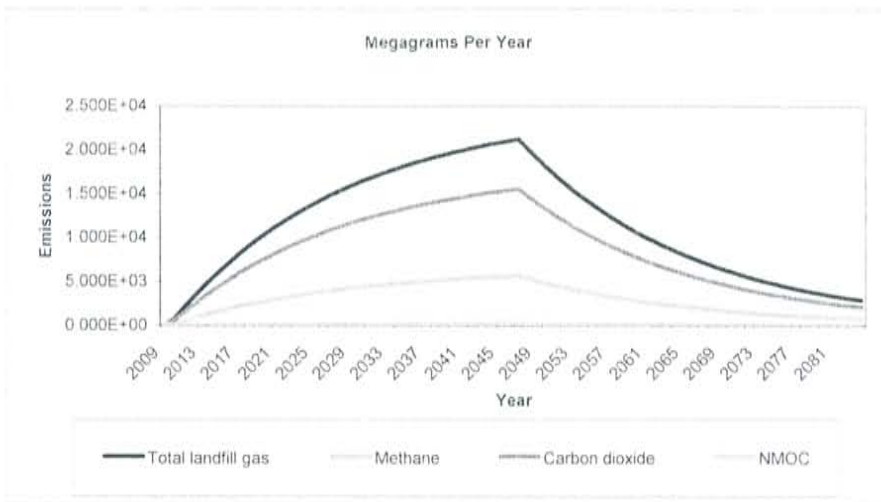
Pollutant Parameters

<i>Gas / Pollutant Default Parameters:</i>				<i>User-specified Pollutant Parameters:</i>	
	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		

Pollutant Parameters (Continued)

<i>Gas / Pollutant Default Parameters:</i>				<i>User-specified Pollutant Parameters:</i>	
	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		

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)
2009	0	0	0	0	0	0
2010	6.846E+02	5.482E+05	3.683E+01	1.829E+02	2.741E+05	1.842E+01
2011	1.932E+03	1.547E+06	1.040E+02	5.161E+02	7.736E+05	5.198E+01
2012	3.114E+03	2.494E+06	1.676E+02	8.318E+02	1.247E+06	8.378E+01
2013	4.234E+03	3.390E+06	2.278E+02	1.131E+03	1.695E+06	1.139E+02
2014	5.295E+03	4.240E+06	2.849E+02	1.414E+03	2.120E+06	1.424E+02
2015	6.300E+03	5.045E+06	3.390E+02	1.683E+03	2.523E+06	1.695E+02
2016	7.253E+03	5.808E+06	3.902E+02	1.937E+03	2.904E+06	1.951E+02
2017	8.155E+03	6.530E+06	4.388E+02	2.178E+03	3.265E+06	2.194E+02
2018	9.010E+03	7.215E+06	4.848E+02	2.407E+03	3.607E+06	2.424E+02
2019	9.820E+03	7.863E+06	5.283E+02	2.623E+03	3.932E+06	2.642E+02
2020	1.059E+04	8.478E+06	5.696E+02	2.828E+03	4.239E+06	2.848E+02
2021	1.131E+04	9.060E+06	6.087E+02	3.022E+03	4.530E+06	3.044E+02
2022	1.200E+04	9.612E+06	6.458E+02	3.206E+03	4.806E+06	3.229E+02
2023	1.266E+04	1.013E+07	6.809E+02	3.381E+03	5.067E+06	3.405E+02
2024	1.327E+04	1.063E+07	7.142E+02	3.546E+03	5.315E+06	3.571E+02
2025	1.386E+04	1.110E+07	7.457E+02	3.702E+03	5.549E+06	3.728E+02
2026	1.441E+04	1.154E+07	7.756E+02	3.850E+03	5.771E+06	3.878E+02
2027	1.494E+04	1.196E+07	8.039E+02	3.991E+03	5.982E+06	4.019E+02
2028	1.544E+04	1.236E+07	8.307E+02	4.124E+03	6.181E+06	4.153E+02
2029	1.591E+04	1.274E+07	8.561E+02	4.250E+03	6.370E+06	4.280E+02
2030	1.636E+04	1.310E+07	8.801E+02	4.369E+03	6.549E+06	4.401E+02
2031	1.678E+04	1.344E+07	9.029E+02	4.483E+03	6.719E+06	4.515E+02
2032	1.718E+04	1.376E+07	9.245E+02	4.590E+03	6.880E+06	4.623E+02
2033	1.756E+04	1.406E+07	9.450E+02	4.691E+03	7.032E+06	4.725E+02
2034	1.792E+04	1.435E+07	9.643E+02	4.788E+03	7.176E+06	4.822E+02
2035	1.827E+04	1.463E+07	9.827E+02	4.879E+03	7.313E+06	4.914E+02
2036	1.859E+04	1.488E+07	1.000E+03	4.965E+03	7.442E+06	5.001E+02
2037	1.890E+04	1.513E+07	1.017E+03	5.047E+03	7.565E+06	5.083E+02
2038	1.919E+04	1.536E+07	1.032E+03	5.125E+03	7.681E+06	5.161E+02
2039	1.946E+04	1.558E+07	1.047E+03	5.198E+03	7.792E+06	5.235E+02
2040	1.972E+04	1.579E+07	1.061E+03	5.268E+03	7.896E+06	5.305E+02
2041	1.997E+04	1.599E+07	1.074E+03	5.334E+03	7.995E+06	5.372E+02
2042	2.020E+04	1.618E+07	1.087E+03	5.396E+03	8.088E+06	5.435E+02
2043	2.042E+04	1.635E+07	1.099E+03	5.455E+03	8.177E+06	5.494E+02
2044	2.063E+04	1.652E+07	1.110E+03	5.511E+03	8.261E+06	5.551E+02
2045	2.083E+04	1.668E+07	1.121E+03	5.565E+03	8.341E+06	5.604E+02
2046	2.102E+04	1.683E+07	1.131E+03	5.615E+03	8.416E+06	5.655E+02
2047	2.120E+04	1.698E+07	1.141E+03	5.663E+03	8.488E+06	5.703E+02
2048	2.009E+04	1.608E+07	1.081E+03	5.365E+03	8.042E+06	5.403E+02
2049	1.903E+04	1.524E+07	1.024E+03	5.083E+03	7.619E+06	5.119E+02
2050	1.803E+04	1.444E+07	9.700E+02	4.816E+03	7.218E+06	4.850E+02
2051	1.708E+04	1.368E+07	9.190E+02	4.563E+03	6.839E+06	4.595E+02
2052	1.618E+04	1.296E+07	8.707E+02	4.323E+03	6.479E+06	4.354E+02
2053	1.533E+04	1.228E+07	8.249E+02	4.095E+03	6.139E+06	4.125E+02
2054	1.453E+04	1.163E+07	7.816E+02	3.880E+03	5.816E+06	3.908E+02
2055	1.376E+04	1.102E+07	7.405E+02	3.676E+03	5.510E+06	3.702E+02
2056	1.304E+04	1.044E+07	7.016E+02	3.483E+03	5.221E+06	3.508E+02
2057	1.235E+04	9.892E+06	6.647E+02	3.300E+03	4.946E+06	3.323E+02
2058	1.170E+04	9.372E+06	6.297E+02	3.126E+03	4.686E+06	3.149E+02

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)
2059	1.109E+04	8.880E+06	5.966E+02	2.962E+03	4.440E+06	2.983E+02
2060	1.051E+04	8.413E+06	5.653E+02	2.806E+03	4.206E+06	2.826E+02
2061	9.954E+03	7.971E+06	5.356E+02	2.659E+03	3.985E+06	2.678E+02
2062	9.431E+03	7.552E+06	5.074E+02	2.519E+03	3.776E+06	2.537E+02
2063	8.935E+03	7.155E+06	4.807E+02	2.387E+03	3.577E+06	2.404E+02
2064	8.465E+03	6.779E+06	4.555E+02	2.261E+03	3.389E+06	2.277E+02
2065	8.020E+03	6.422E+06	4.315E+02	2.142E+03	3.211E+06	2.158E+02
2066	7.599E+03	6.085E+06	4.088E+02	2.030E+03	3.042E+06	2.044E+02
2067	7.199E+03	5.765E+06	3.873E+02	1.923E+03	2.882E+06	1.937E+02
2068	6.821E+03	5.462E+06	3.670E+02	1.822E+03	2.731E+06	1.835E+02
2069	6.462E+03	5.175E+06	3.477E+02	1.726E+03	2.587E+06	1.738E+02
2070	6.123E+03	4.903E+06	3.294E+02	1.635E+03	2.451E+06	1.647E+02
2071	5.801E+03	4.645E+06	3.121E+02	1.549E+03	2.322E+06	1.560E+02
2072	5.496E+03	4.401E+06	2.957E+02	1.468E+03	2.200E+06	1.478E+02
2073	5.207E+03	4.169E+06	2.801E+02	1.391E+03	2.085E+06	1.401E+02
2074	4.933E+03	3.950E+06	2.654E+02	1.318E+03	1.975E+06	1.327E+02
2075	4.674E+03	3.743E+06	2.515E+02	1.248E+03	1.871E+06	1.257E+02
2076	4.428E+03	3.546E+06	2.382E+02	1.183E+03	1.773E+06	1.191E+02
2077	4.195E+03	3.359E+06	2.257E+02	1.121E+03	1.680E+06	1.129E+02
2078	3.975E+03	3.183E+06	2.139E+02	1.062E+03	1.591E+06	1.069E+02
2079	3.766E+03	3.016E+06	2.026E+02	1.006E+03	1.508E+06	1.013E+02
2080	3.568E+03	2.857E+06	1.920E+02	9.530E+02	1.429E+06	9.598E+01
2081	3.380E+03	2.707E+06	1.819E+02	9.029E+02	1.353E+06	9.094E+01
2082	3.203E+03	2.565E+06	1.723E+02	8.555E+02	1.282E+06	8.616E+01
2083	3.034E+03	2.430E+06	1.633E+02	8.105E+02	1.215E+06	8.163E+01
2084	2.875E+03	2.302E+06	1.547E+02	7.679E+02	1.151E+06	7.734E+01
2085	2.724E+03	2.181E+06	1.465E+02	7.275E+02	1.090E+06	7.327E+01
2086	2.580E+03	2.066E+06	1.388E+02	6.893E+02	1.033E+06	6.942E+01
2087	2.445E+03	1.958E+06	1.315E+02	6.530E+02	9.789E+05	6.577E+01
2088	2.316E+03	1.855E+06	1.246E+02	6.187E+02	9.274E+05	6.231E+01
2089	2.195E+03	1.757E+06	1.181E+02	5.862E+02	8.786E+05	5.904E+01
2090	2.079E+03	1.665E+06	1.119E+02	5.554E+02	8.325E+05	5.593E+01
2091	1.970E+03	1.577E+06	1.060E+02	5.262E+02	7.887E+05	5.299E+01
2092	1.866E+03	1.494E+06	1.004E+02	4.985E+02	7.472E+05	5.021E+01
2093	1.768E+03	1.416E+06	9.514E+01	4.723E+02	7.080E+05	4.757E+01
2094	1.675E+03	1.341E+06	9.013E+01	4.475E+02	6.707E+05	4.507E+01
2095	1.587E+03	1.271E+06	8.540E+01	4.240E+02	6.355E+05	4.270E+01
2096	1.504E+03	1.204E+06	8.091E+01	4.017E+02	6.021E+05	4.045E+01
2097	1.425E+03	1.141E+06	7.665E+01	3.806E+02	5.704E+05	3.833E+01
2098	1.350E+03	1.081E+06	7.262E+01	3.606E+02	5.404E+05	3.631E+01
2099	1.279E+03	1.024E+06	6.881E+01	3.416E+02	5.120E+05	3.440E+01
2100	1.212E+03	9.702E+05	6.519E+01	3.236E+02	4.851E+05	3.259E+01
2101	1.148E+03	9.192E+05	6.176E+01	3.066E+02	4.596E+05	3.088E+01
2102	1.088E+03	8.709E+05	5.852E+01	2.905E+02	4.355E+05	2.926E+01
2103	1.030E+03	8.251E+05	5.544E+01	2.752E+02	4.126E+05	2.772E+01
2104	9.763E+02	7.817E+05	5.253E+01	2.608E+02	3.909E+05	2.626E+01
2105	9.249E+02	7.407E+05	4.976E+01	2.471E+02	3.703E+05	2.488E+01
2106	8.763E+02	7.017E+05	4.715E+01	2.341E+02	3.509E+05	2.357E+01
2107	8.303E+02	6.648E+05	4.467E+01	2.218E+02	3.324E+05	2.233E+01
2108	7.866E+02	6.299E+05	4.232E+01	2.101E+02	3.149E+05	2.116E+01
2109	7.453E+02	5.968E+05	4.010E+01	1.991E+02	2.984E+05	2.005E+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)
2110	7.061E+02	5.654E+05	3.799E+01	1.886E+02	2.827E+05	1.899E+01
2111	6.690E+02	5.357E+05	3.599E+01	1.787E+02	2.678E+05	1.800E+01
2112	6.338E+02	5.075E+05	3.410E+01	1.693E+02	2.538E+05	1.705E+01
2113	6.005E+02	4.808E+05	3.231E+01	1.604E+02	2.404E+05	1.615E+01
2114	5.689E+02	4.556E+05	3.061E+01	1.520E+02	2.278E+05	1.530E+01
2115	5.390E+02	4.316E+05	2.900E+01	1.440E+02	2.158E+05	1.450E+01
2116	5.107E+02	4.089E+05	2.748E+01	1.364E+02	2.045E+05	1.374E+01
2117	4.838E+02	3.874E+05	2.603E+01	1.292E+02	1.937E+05	1.302E+01
2118	4.584E+02	3.671E+05	2.466E+01	1.224E+02	1.835E+05	1.233E+01
2119	4.343E+02	3.478E+05	2.337E+01	1.160E+02	1.739E+05	1.168E+01
2120	4.115E+02	3.295E+05	2.214E+01	1.099E+02	1.647E+05	1.107E+01
2121	3.898E+02	3.122E+05	2.097E+01	1.041E+02	1.561E+05	1.049E+01
2122	3.693E+02	2.958E+05	1.987E+01	9.866E+01	1.479E+05	9.936E+00
2123	3.499E+02	2.802E+05	1.883E+01	9.347E+01	1.401E+05	9.414E+00
2124	3.315E+02	2.655E+05	1.784E+01	8.856E+01	1.327E+05	8.919E+00
2125	3.141E+02	2.515E+05	1.690E+01	8.390E+01	1.258E+05	8.450E+00
2126	2.976E+02	2.383E+05	1.601E+01	7.949E+01	1.191E+05	8.006E+00
2127	2.820E+02	2.258E+05	1.517E+01	7.531E+01	1.129E+05	7.585E+00
2128	2.671E+02	2.139E+05	1.437E+01	7.135E+01	1.070E+05	7.186E+00
2129	2.531E+02	2.027E+05	1.362E+01	6.760E+01	1.013E+05	6.808E+00
2130	2.398E+02	1.920E+05	1.290E+01	6.405E+01	9.600E+04	6.450E+00
2131	2.272E+02	1.819E+05	1.222E+01	6.068E+01	9.096E+04	6.111E+00
2132	2.152E+02	1.724E+05	1.158E+01	5.749E+01	8.618E+04	5.790E+00
2133	2.039E+02	1.633E+05	1.097E+01	5.447E+01	8.165E+04	5.486E+00
2134	1.932E+02	1.547E+05	1.039E+01	5.161E+01	7.735E+04	5.197E+00
2135	1.830E+02	1.466E+05	9.848E+00	4.889E+01	7.329E+04	4.924E+00
2136	1.734E+02	1.389E+05	9.331E+00	4.632E+01	6.943E+04	4.665E+00
2137	1.643E+02	1.316E+05	8.840E+00	4.389E+01	6.578E+04	4.420E+00
2138	1.557E+02	1.247E+05	8.375E+00	4.158E+01	6.233E+04	4.188E+00
2139	1.475E+02	1.181E+05	7.935E+00	3.940E+01	5.905E+04	3.968E+00
2140	1.397E+02	1.119E+05	7.518E+00	3.732E+01	5.595E+04	3.759E+00
2141	1.324E+02	1.060E+05	7.123E+00	3.536E+01	5.300E+04	3.561E+00
2142	1.254E+02	1.004E+05	6.748E+00	3.350E+01	5.022E+04	3.374E+00
2143	1.188E+02	9.516E+04	6.394E+00	3.174E+01	4.758E+04	3.197E+00
2144	1.126E+02	9.015E+04	6.058E+00	3.007E+01	4.508E+04	3.029E+00
2145	1.067E+02	8.542E+04	5.739E+00	2.849E+01	4.271E+04	2.870E+00
2146	1.011E+02	8.093E+04	5.437E+00	2.699E+01	4.046E+04	2.719E+00
2147	9.575E+01	7.667E+04	5.152E+00	2.558E+01	3.834E+04	2.576E+00
2148	9.072E+01	7.264E+04	4.881E+00	2.423E+01	3.632E+04	2.440E+00
2149	8.595E+01	6.882E+04	4.624E+00	2.296E+01	3.441E+04	2.312E+00

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2009	0	0	0	0	0	0
2010	5.017E+02	2.741E+05	1.842E+01	7.860E+00	2.193E+03	1.473E-01
2011	1.416E+03	7.736E+05	5.198E+01	2.218E+01	6.189E+03	4.158E-01
2012	2.282E+03	1.247E+06	8.378E+01	3.575E+01	9.975E+03	6.702E-01
2013	3.103E+03	1.695E+06	1.139E+02	4.861E+01	1.356E+04	9.112E-01
2014	3.881E+03	2.120E+06	1.424E+02	6.079E+01	1.696E+04	1.140E+00
2015	4.617E+03	2.523E+06	1.695E+02	7.234E+01	2.018E+04	1.356E+00
2016	5.315E+03	2.904E+06	1.951E+02	8.327E+01	2.323E+04	1.561E+00
2017	5.977E+03	3.265E+06	2.194E+02	9.363E+01	2.612E+04	1.755E+00
2018	6.603E+03	3.607E+06	2.424E+02	1.034E+02	2.886E+04	1.939E+00
2019	7.197E+03	3.932E+06	2.642E+02	1.127E+02	3.145E+04	2.113E+00
2020	7.759E+03	4.239E+06	2.848E+02	1.216E+02	3.391E+04	2.279E+00
2021	8.292E+03	4.530E+06	3.044E+02	1.299E+02	3.624E+04	2.435E+00
2022	8.797E+03	4.806E+06	3.229E+02	1.378E+02	3.845E+04	2.583E+00
2023	9.275E+03	5.067E+06	3.405E+02	1.453E+02	4.054E+04	2.724E+00
2024	9.728E+03	5.315E+06	3.571E+02	1.524E+02	4.252E+04	2.857E+00
2025	1.016E+04	5.549E+06	3.728E+02	1.591E+02	4.439E+04	2.983E+00
2026	1.056E+04	5.771E+06	3.878E+02	1.655E+02	4.617E+04	3.102E+00
2027	1.095E+04	5.982E+06	4.019E+02	1.715E+02	4.786E+04	3.215E+00
2028	1.132E+04	6.181E+06	4.153E+02	1.773E+02	4.945E+04	3.323E+00
2029	1.166E+04	6.370E+06	4.280E+02	1.827E+02	5.096E+04	3.424E+00
2030	1.199E+04	6.549E+06	4.401E+02	1.878E+02	5.240E+04	3.520E+00
2031	1.230E+04	6.719E+06	4.515E+02	1.927E+02	5.375E+04	3.612E+00
2032	1.259E+04	6.880E+06	4.623E+02	1.973E+02	5.504E+04	3.698E+00
2033	1.287E+04	7.032E+06	4.725E+02	2.016E+02	5.626E+04	3.780E+00
2034	1.314E+04	7.176E+06	4.822E+02	2.058E+02	5.741E+04	3.857E+00
2035	1.339E+04	7.313E+06	4.914E+02	2.097E+02	5.850E+04	3.931E+00
2036	1.362E+04	7.442E+06	5.001E+02	2.134E+02	5.954E+04	4.000E+00
2037	1.385E+04	7.565E+06	5.083E+02	2.169E+02	6.052E+04	4.066E+00
2038	1.406E+04	7.681E+06	5.161E+02	2.203E+02	6.145E+04	4.129E+00
2039	1.426E+04	7.792E+06	5.235E+02	2.234E+02	6.233E+04	4.188E+00
2040	1.445E+04	7.896E+06	5.305E+02	2.264E+02	6.317E+04	4.244E+00
2041	1.463E+04	7.995E+06	5.372E+02	2.293E+02	6.396E+04	4.297E+00
2042	1.481E+04	8.088E+06	5.435E+02	2.319E+02	6.471E+04	4.348E+00
2043	1.497E+04	8.177E+06	5.494E+02	2.345E+02	6.542E+04	4.395E+00
2044	1.512E+04	8.261E+06	5.551E+02	2.369E+02	6.609E+04	4.441E+00
2045	1.527E+04	8.341E+06	5.604E+02	2.392E+02	6.673E+04	4.483E+00
2046	1.541E+04	8.416E+06	5.655E+02	2.413E+02	6.733E+04	4.524E+00
2047	1.554E+04	8.488E+06	5.703E+02	2.434E+02	6.790E+04	4.562E+00
2048	1.472E+04	8.042E+06	5.403E+02	2.306E+02	6.433E+04	4.323E+00
2049	1.395E+04	7.619E+06	5.119E+02	2.185E+02	6.095E+04	4.095E+00
2050	1.321E+04	7.218E+06	4.850E+02	2.070E+02	5.775E+04	3.880E+00
2051	1.252E+04	6.839E+06	4.595E+02	1.961E+02	5.471E+04	3.676E+00
2052	1.186E+04	6.479E+06	4.354E+02	1.858E+02	5.184E+04	3.483E+00
2053	1.124E+04	6.139E+06	4.125E+02	1.760E+02	4.911E+04	3.300E+00
2054	1.065E+04	5.816E+06	3.908E+02	1.668E+02	4.653E+04	3.126E+00
2055	1.009E+04	5.510E+06	3.702E+02	1.580E+02	4.408E+04	2.962E+00
2056	9.556E+03	5.221E+06	3.508E+02	1.497E+02	4.177E+04	2.806E+00
2057	9.054E+03	4.946E+06	3.323E+02	1.418E+02	3.957E+04	2.659E+00
2058	8.578E+03	4.686E+06	3.149E+02	1.344E+02	3.749E+04	2.519E+00

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2059	8.127E+03	4.440E+06	2.983E+02	1.273E+02	3.552E+04	2.387E+00
2060	7.700E+03	4.206E+06	2.826E+02	1.206E+02	3.365E+04	2.261E+00
2061	7.295E+03	3.985E+06	2.678E+02	1.143E+02	3.188E+04	2.142E+00
2062	6.912E+03	3.776E+06	2.537E+02	1.083E+02	3.021E+04	2.030E+00
2063	6.548E+03	3.577E+06	2.404E+02	1.026E+02	2.862E+04	1.923E+00
2064	6.204E+03	3.389E+06	2.277E+02	9.719E+01	2.711E+04	1.822E+00
2065	5.878E+03	3.211E+06	2.158E+02	9.208E+01	2.569E+04	1.726E+00
2066	5.569E+03	3.042E+06	2.044E+02	8.724E+01	2.434E+04	1.635E+00
2067	5.276E+03	2.882E+06	1.937E+02	8.266E+01	2.306E+04	1.549E+00
2068	4.999E+03	2.731E+06	1.835E+02	7.831E+01	2.185E+04	1.468E+00
2069	4.736E+03	2.587E+06	1.738E+02	7.419E+01	2.070E+04	1.391E+00
2070	4.487E+03	2.451E+06	1.647E+02	7.029E+01	1.961E+04	1.318E+00
2071	4.251E+03	2.322E+06	1.560E+02	6.660E+01	1.858E+04	1.248E+00
2072	4.028E+03	2.200E+06	1.478E+02	6.310E+01	1.760E+04	1.183E+00
2073	3.816E+03	2.085E+06	1.401E+02	5.978E+01	1.668E+04	1.121E+00
2074	3.615E+03	1.975E+06	1.327E+02	5.664E+01	1.580E+04	1.062E+00
2075	3.425E+03	1.871E+06	1.257E+02	5.366E+01	1.497E+04	1.006E+00
2076	3.245E+03	1.773E+06	1.191E+02	5.084E+01	1.418E+04	9.530E-01
2077	3.075E+03	1.680E+06	1.129E+02	4.817E+01	1.344E+04	9.029E-01
2078	2.913E+03	1.591E+06	1.069E+02	4.564E+01	1.273E+04	8.554E-01
2079	2.760E+03	1.508E+06	1.013E+02	4.324E+01	1.206E+04	8.105E-01
2080	2.615E+03	1.429E+06	9.598E+01	4.096E+01	1.143E+04	7.678E-01
2081	2.477E+03	1.353E+06	9.094E+01	3.881E+01	1.083E+04	7.275E-01
2082	2.347E+03	1.282E+06	8.616E+01	3.677E+01	1.026E+04	6.892E-01
2083	2.224E+03	1.215E+06	8.163E+01	3.484E+01	9.719E+03	6.530E-01
2084	2.107E+03	1.151E+06	7.734E+01	3.301E+01	9.208E+03	6.187E-01
2085	1.996E+03	1.090E+06	7.327E+01	3.127E+01	8.724E+03	5.862E-01
2086	1.891E+03	1.033E+06	6.942E+01	2.963E+01	8.265E+03	5.553E-01
2087	1.792E+03	9.789E+05	6.577E+01	2.807E+01	7.831E+03	5.262E-01
2088	1.698E+03	9.274E+05	6.231E+01	2.659E+01	7.419E+03	4.985E-01
2089	1.608E+03	8.786E+05	5.904E+01	2.520E+01	7.029E+03	4.723E-01
2090	1.524E+03	8.325E+05	5.593E+01	2.387E+01	6.660E+03	4.475E-01
2091	1.444E+03	7.887E+05	5.299E+01	2.262E+01	6.310E+03	4.239E-01
2092	1.368E+03	7.472E+05	5.021E+01	2.143E+01	5.978E+03	4.017E-01
2093	1.296E+03	7.080E+05	4.757E+01	2.030E+01	5.664E+03	3.805E-01
2094	1.228E+03	6.707E+05	4.507E+01	1.923E+01	5.366E+03	3.605E-01
2095	1.163E+03	6.355E+05	4.270E+01	1.822E+01	5.084E+03	3.416E-01
2096	1.102E+03	6.021E+05	4.045E+01	1.726E+01	4.817E+03	3.236E-01
2097	1.044E+03	5.704E+05	3.833E+01	1.636E+01	4.563E+03	3.066E-01
2098	9.893E+02	5.404E+05	3.631E+01	1.550E+01	4.324E+03	2.905E-01
2099	9.373E+02	5.120E+05	3.440E+01	1.468E+01	4.096E+03	2.752E-01
2100	8.880E+02	4.851E+05	3.259E+01	1.391E+01	3.881E+03	2.608E-01
2101	8.413E+02	4.596E+05	3.088E+01	1.318E+01	3.677E+03	2.471E-01
2102	7.971E+02	4.355E+05	2.926E+01	1.249E+01	3.484E+03	2.341E-01
2103	7.552E+02	4.126E+05	2.772E+01	1.183E+01	3.300E+03	2.218E-01
2104	7.155E+02	3.909E+05	2.626E+01	1.121E+01	3.127E+03	2.101E-01
2105	6.779E+02	3.703E+05	2.488E+01	1.062E+01	2.963E+03	1.991E-01
2106	6.422E+02	3.509E+05	2.357E+01	1.006E+01	2.807E+03	1.886E-01
2107	6.085E+02	3.324E+05	2.233E+01	9.532E+00	2.659E+03	1.787E-01
2108	5.765E+02	3.149E+05	2.116E+01	9.031E+00	2.520E+03	1.693E-01
2109	5.462E+02	2.984E+05	2.005E+01	8.556E+00	2.387E+03	1.604E-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)
2110	5.175E+02	2.827E+05	1.899E+01	8.107E+00	2.262E+03	1.520E-01
2111	4.903E+02	2.678E+05	1.800E+01	7.680E+00	2.143E+03	1.440E-01
2112	4.645E+02	2.538E+05	1.705E+01	7.277E+00	2.030E+03	1.364E-01
2113	4.401E+02	2.404E+05	1.615E+01	6.894E+00	1.923E+03	1.292E-01
2114	4.170E+02	2.278E+05	1.530E+01	6.532E+00	1.822E+03	1.224E-01
2115	3.950E+02	2.158E+05	1.450E+01	6.188E+00	1.726E+03	1.160E-01
2116	3.743E+02	2.045E+05	1.374E+01	5.863E+00	1.636E+03	1.099E-01
2117	3.546E+02	1.937E+05	1.302E+01	5.555E+00	1.550E+03	1.041E-01
2118	3.360E+02	1.835E+05	1.233E+01	5.263E+00	1.468E+03	9.865E-02
2119	3.183E+02	1.739E+05	1.168E+01	4.986E+00	1.391E+03	9.347E-02
2120	3.016E+02	1.647E+05	1.107E+01	4.724E+00	1.318E+03	8.855E-02
2121	2.857E+02	1.561E+05	1.049E+01	4.476E+00	1.249E+03	8.390E-02
2122	2.707E+02	1.479E+05	9.936E+00	4.240E+00	1.183E+03	7.949E-02
2123	2.565E+02	1.401E+05	9.414E+00	4.018E+00	1.121E+03	7.531E-02
2124	2.430E+02	1.327E+05	8.919E+00	3.806E+00	1.062E+03	7.135E-02
2125	2.302E+02	1.258E+05	8.450E+00	3.606E+00	1.006E+03	6.760E-02
2126	2.181E+02	1.191E+05	8.006E+00	3.417E+00	9.532E+02	6.405E-02
2127	2.066E+02	1.129E+05	7.585E+00	3.237E+00	9.031E+02	6.068E-02
2128	1.958E+02	1.070E+05	7.186E+00	3.067E+00	8.556E+02	5.749E-02
2129	1.855E+02	1.013E+05	6.808E+00	2.906E+00	8.106E+02	5.447E-02
2130	1.757E+02	9.600E+04	6.450E+00	2.753E+00	7.680E+02	5.160E-02
2131	1.665E+02	9.096E+04	6.111E+00	2.608E+00	7.277E+02	4.889E-02
2132	1.577E+02	8.618E+04	5.790E+00	2.471E+00	6.894E+02	4.632E-02
2133	1.495E+02	8.165E+04	5.486E+00	2.341E+00	6.532E+02	4.389E-02
2134	1.416E+02	7.735E+04	5.197E+00	2.218E+00	6.188E+02	4.158E-02
2135	1.342E+02	7.329E+04	4.924E+00	2.102E+00	5.863E+02	3.939E-02
2136	1.271E+02	6.943E+04	4.665E+00	1.991E+00	5.555E+02	3.732E-02
2137	1.204E+02	6.578E+04	4.420E+00	1.886E+00	5.263E+02	3.536E-02
2138	1.141E+02	6.233E+04	4.188E+00	1.787E+00	4.986E+02	3.350E-02
2139	1.081E+02	5.905E+04	3.968E+00	1.693E+00	4.724E+02	3.174E-02
2140	1.024E+02	5.595E+04	3.759E+00	1.604E+00	4.476E+02	3.007E-02
2141	9.703E+01	5.300E+04	3.561E+00	1.520E+00	4.240E+02	2.849E-02
2142	9.192E+01	5.022E+04	3.374E+00	1.440E+00	4.017E+02	2.699E-02
2143	8.709E+01	4.758E+04	3.197E+00	1.364E+00	3.806E+02	2.557E-02
2144	8.251E+01	4.508E+04	3.029E+00	1.293E+00	3.606E+02	2.423E-02
2145	7.818E+01	4.271E+04	2.870E+00	1.225E+00	3.417E+02	2.296E-02
2146	7.407E+01	4.046E+04	2.719E+00	1.160E+00	3.237E+02	2.175E-02
2147	7.017E+01	3.834E+04	2.576E+00	1.099E+00	3.067E+02	2.061E-02
2148	6.648E+01	3.632E+04	2.440E+00	1.042E+00	2.906E+02	1.952E-02
2149	6.299E+01	3.441E+04	2.312E+00	9.868E-01	2.753E+02	1.850E-02

ANNEXE « QC-147 »

FEUILLES DE CALCULS DE MODÉLISATION HELP

Project : RRGMRP - LET Neuville

Calcul lixiviat

Model : HELP

An US EPA model for predicting landfill hydrologic processes and testing of effectiveness of landfill designs

Author : Your title Annie Lefebvre

Client : Title Marc-André Trudel

Location : Neuville

2007-09-11

1. Profile. OUVERT

Model Settings








[HELP] Case Settings

Parameter	Value	Units
Runoff Method	Model calculated	(-)
Initial Moisture Settings	Model calculated	(-)

[HELP] Surface Water Settings

Parameter	Value	Units
Runoff Area	0	(%%)
Vegetation Class	Bare soil	(-)

Profile Structure

Layer	Top (m)	Bottom (m)	Thickness (m)
 Loamy Fine Sand	0.0000	-0.3000	0.3000
 Municipal Waste (312 kg/cub.m)	-0.3000	-20.3000	20.0000
 Sand	-20.3000	-20.8000	0.5000
 High Density Polyethylene (HDPE)	-20.7995	-20.8005	0.0010
 Drainage Net (0.5cm)	-20.8000	-20.8050	0.0050
 High Density Polyethylene	-20.8050	-20.8060	0.0010
 Clay	-20.8060	-21.8060	1.0000

1.1. Layer. Loamy Fine Sand

Top Slope Length: 30.0000
 Bottom Slope Length: 30.0000
 Top Slope: 30.0000
 Bottom Slope : 30.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.457	(vol/vol)
field capacity	0.131	(vol/vol)
wilting point	0.058	(vol/vol)
sat.hydr.conductivity	1E-3	(cm/sec)
subsurface inflow	0	(mm/year)

1.2. Layer. Municipal Waste (312 kg/cub.m)

Top Slope Length: 30.0000
 Bottom Slope Length: 0.0000
 Top Slope: 30.0000
 Bottom Slope : 0.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.6710	(vol/vol)

field capacity	0.2920	(vol/vol)
wilting point	0.0770	(vol/vol)
sat.hydr.conductivity	0.0001	(cm/sec)
subsurface inflow	0.0000	(cm/day)

1.3. Layer. Sand

Top Slope Length: 0.0000
Bottom Slope Length: 50.0000
Top Slope: 0.0000
Bottom Slope : 2.0000

[HELP] Lateral Drainage Layer Parameters

Parameter	Value	Units
total porosity	0.437	(vol/vol)
field capacity	0.062	(vol/vol)
wilting point	0.024	(vol/vol)
sat.hydr.conductivity	0.0058	(cm/sec)
subsurface inflow	0	(mm/year)

1.4. Layer. High Density Polyethylene (HDPE)

Top Slope Length: 50.0000
Bottom Slope Length: 50.0000
Top Slope: 2.0000
Bottom Slope : 2.0000

[HELP] Geomembrane Liner Parameters

Parameter	Value	Units
sat.hydr.conductivity	2E-13	(cm/sec)
pinhole density	2	(#/ha)
installation defects	2	(#/ha)
placement quality	4	(-)
geotextile transmissivity	0	(cm ² /sec)

1.5. Layer. Drainage Net (0.5cm)

Top Slope Length: 50.0000
Bottom Slope Length: 50.0000
Top Slope: 2.0000
Bottom Slope : 2.0000

[HELP] Geotextiles and Geonets Parameters

Parameter	Value	Units
total porosity	0.8500	(vol/vol)
field capacity	0.01	(vol/vol)
wilting point	0.005	(vol/vol)
sat.hydr.conductivity	864000.0000000000	(cm/day)
subsurface inflow	0	(cm/day)

1.6. Layer. High Density Polyethylene

Top Slope Length: 50.0000
Bottom Slope Length: 50.0000
Top Slope: 2.0000

Bottom Slope : 2.0000

[HELP] Geomembrane Liner Parameters

Parameter	Value	Units
sat.hydr.conductivity	2E-13	(cm/sec)
pinhole density	2	(#/ha)
installation defects	2	(#/ha)
placement quality	4	(-)
geotextile transmissivity	0	(cm ² /sec)

1.7. Layer. Clay

Top Slope Length: 50.0000
 Bottom Slope Length: 30.0000
 Top Slope: 2.0000
 Bottom Slope : 0.0000

[HELP] Barrier Soil Liner Parameters

Parameter	Value	Units
total porosity	0.475	(vol/vol)
field capacity	0.378	(vol/vol)
wilting point	0.265	(vol/vol)
sat.hydr.conductivity	1.7E-5	(cm/sec)
subsurface inflow	0	(mm/year)

2. Profile. FERMÉ

Model Settings










[HELP] Case Settings


Parameter	Value	Units
Runoff Method	Model calculated	(-)
Initial Moisture Settings	Model calculated	(-)

[HELP] Surface Water Settings

Parameter	Value	Units
Runoff Area	100	(%%)
Vegetation Class	Good stand of grass	(-)

Profile Structure

Layer	Top (m)	Bottom (m)	Thickness (m)
 Loamv Fine Sand1	0.0000	-0.1500	0.1500
 Silty Loam	-0.1500	-0.6000	0.4500
 High Density Polyethylene (HDPE)1	-0.6000	-0.6010	0.0010
 Loamv Fine Sand	-0.6010	-0.9010	0.3000
 Municipal Waste (312 kg/cub.m)	-0.9005	-20.9005	20.0000
 Sand	-20.9005	-21.4005	0.5000
 High Density Polyethylene (HDPE)	-21.4005	-21.4015	0.0010
 Drainage Net (0.5cm)	-21.4010	-21.4060	0.0050
 High Density Polyethylene	-21.4060	-21.4070	0.0010

 Clay	-21.4070	-22.4070	1.0000
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2.1. Layer. Loamy Fine Sand1

Top Slope Length: 30.0000
Bottom Slope Length: 30.0000
Top Slope: 30.0000
Bottom Slope : 30.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.457	(vol/vol)
field capacity	0.131	(vol/vol)
wilting point	0.058	(vol/vol)
sat.hydr.conductivity	1E-3	(cm/sec)
subsurface inflow	0	(mm/year)

2.2. Layer. Silty Loam

Top Slope Length: 30.0000
Bottom Slope Length: 30.0000
Top Slope: 30.0000
Bottom Slope : 30.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.501	(vol/vol)
field capacity	0.284	(vol/vol)
wilting point	0.135	(vol/vol)
sat.hydr.conductivity	1.9E-4	(cm/sec)
subsurface inflow	0	(mm/year)

2.3. Layer. High Density Polyethylene (HDPE)1

Top Slope Length: 30.0000
Bottom Slope Length: 30.0000
Top Slope: 30.0000
Bottom Slope : 30.0000

[HELP] Geomembrane Liner Parameters

Parameter	Value	Units
sat.hydr.conductivity	2E-13	(cm/sec)
pinhole density	2	(#/ha)
installation defects	2	(#/ha)
placement quality	3	(-)
geotextile transmissivity	0	(cm ² /sec)

2.4. Layer. Loamy Fine Sand

Top Slope Length: 0.0000
Bottom Slope Length: 0.0000
Top Slope: 30.0000
Bottom Slope : 0.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.457	(vol/vol)
field capacity	0.131	(vol/vol)
wilting point	0.058	(vol/vol)
sat.hydr.conductivity	1E-3	(cm/sec)
subsurface inflow	0	(mm/year)

2.5. Layer. Municipal Waste (312 kg/cub.m)

Top Slope Length: 30.0000
Bottom Slope Length: 30.0000
Top Slope: 30.0000
Bottom Slope : 0.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.6710	(vol/vol)
field capacity	0.2920	(vol/vol)
wilting point	0.0770	(vol/vol)
sat.hydr.conductivity	0.0001	(cm/sec)
subsurface inflow	0.0000	(cm/day)

2.6. Layer. Sand

Top Slope Length: 30.0000
Bottom Slope Length: 50.0000
Top Slope: 0.0000
Bottom Slope : 2.0000

[HELP] Lateral Drainage Layer Parameters

Parameter	Value	Units
total porosity	0.437	(vol/vol)
field capacity	0.062	(vol/vol)
wilting point	0.024	(vol/vol)
sat.hydr.conductivity	0.0058	(cm/sec)
subsurface inflow	0	(mm/year)

2.7. Layer. High Density Polyethylene (HDPE)

Top Slope Length: 50.0000
Bottom Slope Length: 50.0000
Top Slope: 2.0000
Bottom Slope : 2.0000

[HELP] Geomembrane Liner Parameters

Parameter	Value	Units
sat.hydr.conductivity	2E-13	(cm/sec)
pinhole density	2	(#/ha)
installation defects	2	(#/ha)
placement quality	4	(-)
geotextile transmissivity	0	(cm ² /sec)

2.8. Layer. Drainage Net (0.5cm)

Top Slope Length: 50.0000
 Bottom Slope Length: 50.0000
 Top Slope: 2.0000
 Bottom Slope : 2.0000

[HELP] Geotextiles and Geonets Parameters

Parameter	Value	Units
total porosity	0.8500	(vol/vol)
field capacity	0.01	(vol/vol)
wilting point	0.005	(vol/vol)
sat.hydr.conductivity	864000.0000000000	(cm/day)
subsurface inflow	0	(cm/day)

2.9. Layer. High Density Polyethylene

Top Slope Length: 50.0000
 Bottom Slope Length: 50.0000
 Top Slope: 2.0000
 Bottom Slope : 2.0000

[HELP] Geomembrane Liner Parameters

Parameter	Value	Units
sat.hydr.conductivity	2E-13	(cm/sec)
pinhole density	2	(#/ha)
installation defects	2	(#/ha)
placement quality	4	(-)
geotextile transmissivity	0	(cm ² /sec)

2.10. Layer. Clay

Top Slope Length: 50.0000
 Bottom Slope Length: 30.0000
 Top Slope: 2.0000
 Bottom Slope : 0.0000

[HELP] Barrier Soil Liner Parameters

Parameter	Value	Units
total porosity	0.475	(vol/vol)
field capacity	0.378	(vol/vol)
wilting point	0.265	(vol/vol)
sat.hydr.conductivity	1.7E-5	(cm/sec)
subsurface inflow	0	(mm/year)

RÉSULTATS PROFILE OUVERT:

Annual Totals volume (m3)

	Year-1 (m3)	Year-2 (m3)	Year-3 (m3)	Year-4 (m3)
Precipitation (m3)	1.3274E+05	2.6998E+05	1.6925E+05	2.4773E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Evapotranspiration (m3)	8.6160E+04	1.0200E+05	9.2926E+04	1.0572E+05
Change in water storage (m3)	3.9251E+04	1.5715E+05	4.2740E+04	8.0287E+04
Water budget balance (m3)	-1.9936E-03	-4.0546E-03	-2.5418E-03	-3.7205E-03
Soil water (m3)	1.6082E+06	1.7756E+06	1.8126E+06	1.8856E+06
Snow water (m3)	1.4558E+04	4.3789E+03	1.0123E+04	1.7413E+04
Lateral drainage collected from Layer 3 (m3)	5.9163E+03	8.8594E+03	2.8618E+04	5.3282E+04
Percolation or leakage through Layer 4 (m3)	1.4177E+03	1.9705E+03	4.9663E+03	8.4421E+03
Lateral drainage collected from Layer 5 (m3)	1.4173E+03	1.9704E+03	4.9640E+03	8.4410E+03
Percolation or leakage through Layer 7 (m3)	1.0967E-01	1.4298E-01	3.0728E-01	4.8938E-01

(continued)

	Year-5 (m3)	Year-6 (m3)	Year-7 (m3)	Year-8 (m3)
Precipitation (m3)	2.0290E+05	2.2997E+05	2.0213E+05	2.3489E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	1.1695E+05	8.8599E+04	8.1256E+04	7.7484E+04
Change in water storage (m3)	1.6776E+04	6.4206E+04	1.1302E+04	2.6707E+04
Water budget balance (m3)	-3.0472E-03	-3.4538E-03	-3.0357E-03	-3.5277E-03
Soil water (m3)	1.9193E+06	1.9544E+06	1.9929E+06	2.0075E+06
Snow water (m3)	4.7252E+02	2.9535E+04	2.3455E+03	1.4485E+04
Lateral drainage collected from Layer 3 (m3)	5.9864E+04	6.6927E+04	9.5756E+04	1.1457E+05
Percolation or leakage through Layer 4 (m3)	9.3111E+03	1.0236E+04	1.3814E+04	1.6133E+04
Lateral drainage collected from Layer 5 (m3)	9.3105E+03	1.0235E+04	1.3813E+04	1.6130E+04
Percolation or leakage through Layer 7 (m3)	5.3268E-01	5.7866E-01	7.5234E-01	8.6464E-01

(continued)

	Year-9 (m3)	Year-10 (m3)	Year-11 (m3)	Year-12 (m3)
Precipitation (m3)	1.5540E+05	1.9042E+05	2.4713E+05	1.8293E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	9.8901E+04	8.5245E+04	9.6743E+04	9.3692E+04
Change in water storage (m3)	-6.5393E+04	-5.2794E+03	3.4951E+04	-3.1142E+04
Water budget balance (m3)	-2.3339E-03	-2.8598E-03	-3.7115E-03	-2.7473E-03
Soil water (m3)	1.9457E+06	1.9391E+06	1.9660E+06	1.9474E+06
Snow water (m3)	1.0820E+04	1.2137E+04	2.0284E+04	7.6822E+03

Lateral drainage collected from Layer 3 (m3)	1.0669E+05	9.6475E+04	1.0096E+05	1.0532E+05
Percolation or leakance through Layer 4 (m3)	1.5202E+04	1.3977E+04	1.4474E+04	1.5059E+04
Lateral drainage collected from Layer 5 (m3)	1.5202E+04	1.3975E+04	1.4474E+04	1.5059E+04
Percolation or leakance through Layer 7 (m3)	8.2017E-01	7.6116E-01	7.8450E-01	8.1373E-01

(continued)

	Year-13 (m3)	Year-14 (m3)	Year-15 (m3)	Year-16 (m3)
Precipitation (m3)	2.0014E+05	1.4647E+05	1.6073E+05	2.0892E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	8.3930E+04	7.9185E+04	7.0194E+04	6.2322E+04
Change in water storage (m3)	4.0074E+03	-4.6183E+04	-4.9822E+03	6.1106E+04
Water budget balance (m3)	-3.0057E-03	-2.1998E-03	-2.4139E-03	-3.1377E-03
Soil water (m3)	1.9558E+06	1.9118E+06	1.8943E+06	1.9690E+06
Snow water (m3)	3.3128E+03	1.0769E+03	1.3682E+04	0.0000E+00
Lateral drainage collected from Layer 3 (m3)	9.8045E+04	9.9200E+04	8.3195E+04	7.4344E+04
Percolation or leakance through Layer 4 (m3)	1.4153E+04	1.4271E+04	1.2318E+04	1.1149E+04
Lateral drainage collected from Layer 5 (m3)	1.4153E+04	1.4269E+04	1.2320E+04	1.1148E+04
Percolation or leakance through Layer 7 (m3)	7.6959E-01	7.7480E-01	6.8066E-01	6.2263E-01

(continued)

	Year-17 (m3)	Year-18 (m3)	Year-19 (m3)	Year-20 (m3)
Precipitation (m3)	2.5174E+05	2.2546E+05	2.3738E+05	1.5593E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	1.0269E+05	8.1084E+04	9.5913E+04	7.1012E+04
Change in water storage (m3)	5.3253E+04	4.3811E+03	-1.3644E+04	-6.8632E+04
Water budget balance (m3)	-3.7807E-03	-3.3860E-03	-3.5652E-03	-2.3418E-03
Soil water (m3)	1.9933E+06	2.0172E+06	2.0043E+06	1.9317E+06
Snow water (m3)	2.9044E+04	9.5093E+03	8.7247E+03	1.2698E+04
Lateral drainage collected from Layer 3 (m3)	8.3455E+04	1.2288E+05	1.3651E+05	1.3506E+05
Percolation or leakance through Layer 4 (m3)	1.2340E+04	1.7107E+04	1.8608E+04	1.8489E+04

Lateral drainage collected from Layer 5 (m3)	1.2337E+04	1.7106E+04	1.8606E+04	1.8489E+04
Percolation or leakance through Layer 7 (m3)	6.8158E-01	9.1102E-01	9.8123E-01	9.7648E-01

(continued)

	Year-21 (m3)	Year-22 (m3)	Year-23 (m3)	Year-24 (m3)
Precipitation (m3)	1.5816E+05	3.0108E+05	1.3810E+05	2.6165E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	9.1940E+04	1.1091E+05	7.7514E+04	1.1780E+05
Change in water storage (m3)	-3.4687E+04	9.3819E+04	-5.4454E+04	2.8102E+04
Water budget balance (m3)	-2.3753E-03	-4.5218E-03	-2.0740E-03	-3.9296E-03
Soil water (m3)	1.8993E+06	1.9801E+06	1.9488E+06	1.9505E+06
Snow water (m3)	1.0462E+04	2.3434E+04	2.7673E+02	2.6666E+04
Lateral drainage collected from Layer 3 (m3)	8.8013E+04	8.3977E+04	1.0058E+05	1.0122E+05
Percolation or leakance through Layer 4 (m3)	1.2893E+04	1.2375E+04	1.4457E+04	1.4525E+04
Lateral drainage collected from Layer 5 (m3)	1.2893E+04	1.2375E+04	1.4455E+04	1.4525E+04
Percolation or leakance through Layer 7 (m3)	7.0812E-01	6.8253E-01	7.8404E-01	7.8749E-01

(continued)

	Year-25 (m3)	Year-26 (m3)	Year-27 (m3)	Year-28 (m3)
Precipitation (m3)	1.9346E+05	2.4881E+05	1.9795E+05	2.8138E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	9.7570E+04	8.8853E+04	1.1392E+05	7.9996E+04
Change in water storage (m3)	-1.8348E+04	5.3857E+04	-4.3426E+04	8.1542E+04
Water budget balance (m3)	-2.9055E-03	-3.7367E-03	-2.9729E-03	-4.2258E-03
Soil water (m3)	1.9478E+06	1.9994E+06	1.9589E+06	2.0272E+06
Snow water (m3)	1.1059E+04	1.3318E+04	1.0326E+04	2.3615E+04
Lateral drainage collected from Layer 3 (m3)	9.9951E+04	9.2640E+04	1.1165E+05	1.0487E+05
Percolation or leakance through Layer 4 (m3)	1.4292E+04	1.3457E+04	1.5800E+04	1.4964E+04
Lateral drainage collected from Layer 5 (m3)	1.4291E+04	1.3457E+04	1.5801E+04	1.4963E+04
Percolation or leakance through Layer 7 (m3)	7.7469E-01	7.3551E-01	8.4894E-01	8.0855E-01

(continued)

	Year-29 (m3)	Year-30 (m3)	Year-31 (m3)	Year-32 (m3)
Precipitation (m3)	2.1850E+05	2.9671E+05	2.4192E+05	2.3813E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	9.6192E+04	1.0309E+05	9.5859E+04	1.0422E+05
Change in water storage (m3)	-2.5366E+04	4.3463E+04	-8.8090E+02	-2.3288E+04
Water budget balance (m3)	-3.2815E-03	-4.4562E-03	-3.6333E-03	-3.5763E-03
Soil water (m3)	1.9929E+06	2.0303E+06	2.0554E+06	2.0308E+06
Snow water (m3)	3.2540E+04	3.8608E+04	1.2634E+04	1.3967E+04
Lateral drainage collected from Layer 3 (m3)	1.2984E+05	1.3205E+05	1.2915E+05	1.3840E+05
Percolation or leakage through Layer 4 (m3)	1.7834E+04	1.8108E+04	1.7792E+04	1.8803E+04
Lateral drainage collected from Layer 5 (m3)	1.7829E+04	1.8108E+04	1.7792E+04	1.8800E+04
Percolation or leakage through Layer 7 (m3)	9.4434E-01	9.5781E-01	9.4309E-01	9.9037E-01

(continued)

	Year-33 (m3)	Year-34 (m3)	Year-35 (m3)	Year-36 (m3)
Precipitation (m3)	2.4835E+05	1.7539E+05	1.5598E+05	1.8852E+05
Runoff (m3)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	1.0275E+05	8.5137E+04	8.3605E+04	9.5455E+04
Change in water storage (m3)	1.1277E+04	-5.8329E+04	-6.1611E+04	2.2358E+03
Water budget balance (m3)	-3.7299E-03	-2.6341E-03	-2.3425E-03	-2.8313E-03
Soil water (m3)	2.0229E+06	1.9861E+06	1.9135E+06	1.9368E+06
Snow water (m3)	3.3095E+04	1.1536E+04	2.2601E+04	1.5382E+03
Lateral drainage collected from Layer 3 (m3)	1.1789E+05	1.3067E+05	1.1752E+05	7.9041E+04
Percolation or leakage through Layer 4 (m3)	1.6441E+04	1.7916E+04	1.6466E+04	1.1788E+04
Lateral drainage collected from Layer 5 (m3)	1.6441E+04	1.7915E+04	1.6466E+04	1.1788E+04
Percolation or leakage through Layer 7 (m3)	8.7828E-01	9.4820E-01	8.8031E-01	6.5484E-01

(continued)

	Year-37 (m3)	Total (m3)
Precipitation (m3)	2.1178E+05	7.8081E+06
Runoff (m3)	0.0000E+00	0.0000E+00
Evapotranspiration (m3)	1.0684E+05	3.4236E+06
Change in water storage (m3)	8.9735E+03	3.6374E+05

Water budget balance (m3)	-3.1806E-03	-1.1727E-01
Soil water (m3)	1.9368E+06	7.2049E+07
Snow water (m3)	1.0524E+04	5.1848E+05
Lateral drainage collected from Layer 3 (m3)	8.3616E+04	3.5170E+06
Percolation or leakance through Layer 4 (m3)	1.2344E+04	5.0369E+05
Lateral drainage collected from Layer 5 (m3)	1.2344E+04	5.0366E+05
Percolation or leakance through Layer 7 (m3)	6.8155E-01	2.7364E+01

RÉSULTATS PROFILE FERMÉ:

Annual Totals volume (m3)

	Year-1 (m3)	Year-2 (m3)	Year-3 (m3)	Year-4 (m3)
Precipitation (m3)	1,3274E+05	2,6998E+05	1,6925E+05	2,4773E+05
Runoff (m3)	2,2176E+04	1,3764E+05	5,5428E+04	8,2976E+04
Evapotranspiration (m3)	1,0188E+05	1,3488E+05	1,2125E+05	1,3719E+05
Change in water storage (m3)	8,6846E+03	-3,8349E+03	-1,1009E+04	2,4222E+04
Water budget balance (m3)	-1,9936E-03	-4,0546E-03	-2,5419E-03	-3,7205E-03
Soil water (m3)	1,6334E+06	1,6397E+06	1,6230E+06	1,6399E+06
Snow water (m3)	1,4558E+04	4,3789E+03	1,0123E+04	1,7413E+04
Percolation or leakance through Layer 3 (m3)	3,2438E+03	3,6784E+03	3,3224E+03	3,4408E+03
Lateral drainage collected from Layer 6 (m3)	8,0418E-02	9,7562E+02	2,7682E+03	2,5726E+03
Percolation or leakance through Layer 7 (m3)	2,1263E-01	3,2402E+02	8,0727E+02	7,6361E+02
Lateral drainage collected from Layer 8 (m3)	2,0941E-01	3,2399E+02	8,0721E+02	7,6355E+02
Percolation or leakance through Layer 10 (m3)	3,2256E-03	2,7942E-02	6,0764E-02	5,8191E-02

(continued)

	Year-5 (m3)	Year-6 (m3)	Year-7 (m3)	Year-8 (m3)
Precipitation (m3)	2,0290E+05	2,2997E+05	2,0213E+05	2,3489E+05
Runoff (m3)	8,0543E+04	7,8944E+04	1,3111E+05	1,1500E+05
Evapotranspiration (m3)	1,3563E+05	1,1842E+05	9,4766E+04	1,0454E+05
Change in water storage (m3)	-1,6710E+04	2,9036E+04	-2,7352E+04	1,1746E+04

Water budget balance (m3)	-3,0472E-03	-3,4538E-03	-3,0357E-03	-3,5277E-03
Soil water (m3)	1,6402E+06	1,6401E+06	1,6400E+06	1,6396E+06
Snow water (m3)	4,7252E+02	2,9535E+04	2,3455E+03	1,4485E+04
Percolation or leakage through Layer 3 (m3)	3,5626E+03	3,6297E+03	3,5556E+03	3,4222E+03
Lateral drainage collected from Layer 6 (m3)	2,6480E+03	2,7621E+03	2,7899E+03	2,7876E+03
Percolation or leakage through Layer 7 (m3)	7,8033E+02	8,0593E+02	8,1210E+02	8,1216E+02
Lateral drainage collected from Layer 8 (m3)	7,8027E+02	8,0587E+02	8,1204E+02	8,1210E+02
Percolation or leakage through Layer 10 (m3)	5,9159E-02	6,0685E-02	6,1051E-02	6,1090E-02

(continued)

	Year-9 (m3)	Year-10 (m3)	Year-11 (m3)	Year-12 (m3)
Precipitation (m3)	1,5540E+05	1,9042E+05	2,4713E+05	1,8293E+05
Runoff (m3)	2,6898E+04	8,0022E+04	1,2228E+05	7,8031E+04
Evapotranspiration (m3)	1,2857E+05	1,0621E+05	1,1271E+05	1,1418E+05
Change in water storage (m3)	-3,5040E+03	7,1999E+02	8,6609E+03	-1,2797E+04
Water budget balance (m3)	-2,3339E-03	-2,8598E-03	-3,7115E-03	-2,7473E-03
Soil water (m3)	1,6397E+06	1,6391E+06	1,6397E+06	1,6395E+06
Snow water (m3)	1,0820E+04	1,2137E+04	2,0284E+04	7,6822E+03
Percolation or leakage through Layer 3 (m3)	3,4955E+03	3,4735E+03	3,4764E+03	3,4621E+03
Lateral drainage collected from Layer 6 (m3)	2,6536E+03	2,6762E+03	2,6858E+03	2,7136E+03
Percolation or leakage through Layer 7 (m3)	7,8159E+02	7,8671E+02	7,8886E+02	7,9560E+02
Lateral drainage collected from Layer 8 (m3)	7,8153E+02	7,8665E+02	7,8880E+02	7,9554E+02
Percolation or leakage through Layer 10 (m3)	5,9235E-02	5,9541E-02	5,9668E-02	6,0105E-02

(continued)

	Year-13 (m3)	Year-14 (m3)	Year-15 (m3)	Year-16 (m3)
Precipitation (m3)	2,0014E+05	1,4647E+05	1,6073E+05	2,0892E+05
Runoff (m3)	9,9504E+04	6,1273E+04	5,7280E+04	1,3876E+05
Evapotranspiration (m3)	1,0100E+05	8,9339E+04	8,5606E+04	7,6737E+04
Change in water storage (m3)	-3,8213E+03	-7,6730E+03	1,4507E+04	-1,0120E+04
Water budget balance (m3)	-3,0057E-03	-2,1998E-03	-2,4139E-03	-3,1377E-03

Soil water (m3)	1,6400E+06	1,6346E+06	1,6365E+06	1,6400E+06
Snow water (m3)	3,3128E+03	1,0769E+03	1,3682E+04	0,0000E+00
Percolation or leakance through Layer 3 (m3)	3,5530E+03	3,3219E+03	3,5308E+03	3,5110E+03
Lateral drainage collected from Layer 6 (m3)	2,6693E+03	2,7332E+03	2,5714E+03	2,7374E+03
Percolation or leakance through Layer 7 (m3)	7,8517E+02	7,9952E+02	7,6296E+02	8,0091E+02
Lateral drainage collected from Layer 8 (m3)	7,8511E+02	7,9946E+02	7,6290E+02	8,0085E+02
Percolation or leakance through Layer 10 (m3)	5,9448E-02	6,0304E-02	5,8120E-02	6,0420E-02

(continued)

	Year-17 (m3)	Year-18 (m3)	Year-19 (m3)	Year-20 (m3)
Precipitation (m3)	2,5174E+05	2,2546E+05	2,3738E+05	1,5593E+05
Runoff (m3)	8,6638E+04	1,3435E+05	1,1785E+05	7,0649E+04
Evapotranspiration (m3)	1,3407E+05	1,0565E+05	1,1872E+05	8,5060E+04
Change in water storage (m3)	2,7533E+04	-1,8240E+04	-2,6647E+03	-3,2404E+03
Water budget balance (m3)	-3,7807E-03	-3,3860E-03	-3,5652E-03	-2,3418E-03
Soil water (m3)	1,6385E+06	1,6398E+06	1,6379E+06	1,6307E+06
Snow water (m3)	2,9044E+04	9,5093E+03	8,7247E+03	1,2698E+04
Percolation or leakance through Layer 3 (m3)	3,7151E+03	3,4692E+03	3,4421E+03	3,2847E+03
Lateral drainage collected from Layer 6 (m3)	2,7034E+03	2,8659E+03	2,6911E+03	2,6730E+03
Percolation or leakance through Layer 7 (m3)	7,9281E+02	8,2892E+02	7,9003E+02	7,8652E+02
Lateral drainage collected from Layer 8 (m3)	7,9275E+02	8,2885E+02	7,8997E+02	7,8646E+02
Percolation or leakance through Layer 10 (m3)	5,9904E-02	6,2048E-02	5,9738E-02	5,9564E-02

(continued)

	Year-21 (m3)	Year-22 (m3)	Year-23 (m3)	Year-24 (m3)
Precipitation (m3)	1,5816E+05	3,0108E+05	1,3810E+05	2,6165E+05
Runoff (m3)	4,4765E+04	1,4513E+05	6,7595E+04	8,3438E+04
Evapotranspiration (m3)	1,1103E+05	1,3154E+05	1,0562E+05	1,3543E+05
Change in water storage (m3)	-9,5105E+02	2,0946E+04	-3,8622E+04	3,9465E+04
Water budget balance (m3)	-2,3753E-03	-4,5218E-03	-2,0740E-03	-3,9296E-03
Soil water (m3)	1,6320E+06	1,6400E+06	1,6245E+06	1,6376E+06
Snow water (m3)	1,0462E+04	2,3434E+04	2,7673E+02	2,6666E+04

Percolation or leakance through Layer 3 (m3)	3,4896E+03	3,5485E+03	3,3011E+03	3,6254E+03
Lateral drainage collected from Layer 6 (m3)	2,5555E+03	2,6788E+03	2,7098E+03	2,5539E+03
Percolation or leakance through Layer 7 (m3)	7,5926E+02	7,8725E+02	7,9426E+02	7,5947E+02
Lateral drainage collected from Layer 8 (m3)	7,5921E+02	7,8719E+02	7,9420E+02	7,5941E+02
Percolation or leakance through Layer 10 (m3)	5,7897E-02	5,9572E-02	5,9991E-02	5,7946E-02

(continued)

	Year-25 (m3)	Year-26 (m3)	Year-27 (m3)	Year-28 (m3)
Precipitation (m3)	1,9346E+05	2,4881E+05	1,9795E+05	2,8138E+05
Runoff (m3)	9,3570E+04	1,1089E+05	6,6473E+04	1,6085E+05
Evapotranspiration (m3)	1,2089E+05	1,2089E+05	1,3264E+05	1,0222E+05
Change in water storage (m3)	-2,4633E+04	1,3684E+04	-4,7695E+03	1,4668E+04
Water budget balance (m3)	-2,9055E-03	-3,7367E-03	-2,9729E-03	-4,2258E-03
Soil water (m3)	1,6286E+06	1,6400E+06	1,6382E+06	1,6396E+06
Snow water (m3)	1,1059E+04	1,3318E+04	1,0326E+04	2,3615E+04
Percolation or leakance through Layer 3 (m3)	3,3492E+03	3,6023E+03	3,6763E+03	3,5945E+03
Lateral drainage collected from Layer 6 (m3)	2,8185E+03	2,5829E+03	2,7921E+03	2,8168E+03
Percolation or leakance through Layer 7 (m3)	8,1849E+02	7,6557E+02	8,1266E+02	8,1859E+02
Lateral drainage collected from Layer 8 (m3)	8,1842E+02	7,6551E+02	8,1260E+02	8,1853E+02
Percolation or leakance through Layer 10 (m3)	6,1431E-02	5,8276E-02	6,1085E-02	6,1471E-02

(continued)

	Year-29 (m3)	Year-30 (m3)	Year-31 (m3)	Year-32 (m3)
Precipitation (m3)	2,1850E+05	2,9671E+05	2,4192E+05	2,3813E+05
Runoff (m3)	9,3590E+04	1,3592E+05	1,4370E+05	1,0808E+05
Evapotranspiration (m3)	1,2358E+05	1,3972E+05	1,2063E+05	1,2521E+05
Change in water storage (m3)	-2,3391E+03	1,7677E+04	-2,5876E+04	1,2747E+03
Water budget balance (m3)	-3,2815E-03	-4,4562E-03	-3,6333E-03	-3,5763E-03
Soil water (m3)	1,6283E+06	1,6399E+06	1,6400E+06	1,6400E+06
Snow water (m3)	3,2540E+04	3,8608E+04	1,2634E+04	1,3967E+04

Percolation or leakance through Layer 3 (m3)	3,3922E+03	3,5139E+03	3,5354E+03	3,5408E+03
Lateral drainage collected from Layer 6 (m3)	2,8384E+03	2,6225E+03	2,6789E+03	2,7560E+03
Percolation or leakance through Layer 7 (m3)	8,2295E+02	7,7439E+02	7,8723E+02	8,0505E+02
Lateral drainage collected from Layer 8 (m3)	8,2289E+02	7,7434E+02	7,8717E+02	8,0499E+02
Percolation or leakance through Layer 10 (m3)	6,1697E-02	5,8801E-02	5,9570E-02	6,0666E-02

(continued)

	Year-33 (m3)	Year-34 (m3)	Year-35 (m3)	Year-36 (m3)
Precipitation (m3)	2,4835E+05	1,7539E+05	1,5598E+05	1,8852E+05
Runoff (m3)	8,6153E+04	9,5404E+04	5,3554E+04	7,4482E+04
Evapotranspiration (m3)	1,3970E+05	9,7896E+04	9,5728E+04	1,2525E+05
Change in water storage (m3)	1,8984E+04	-2,1418E+04	3,2562E+03	-1,4482E+04
Water budget balance (m3)	-3,7299E-03	-2,6341E-03	-2,3425E-03	-2,8313E-03
Soil water (m3)	1,6398E+06	1,6400E+06	1,6322E+06	1,6387E+06
Snow water (m3)	3,3095E+04	1,1536E+04	2,2601E+04	1,5382E+03
Percolation or leakance through Layer 3 (m3)	3,5199E+03	3,3977E+03	3,3059E+03	3,5592E+03
Lateral drainage collected from Layer 6 (m3)	2,7208E+03	2,7148E+03	2,6552E+03	2,5226E+03
Percolation or leakance through Layer 7 (m3)	7,9669E+02	7,9531E+02	7,8197E+02	7,5234E+02
Lateral drainage collected from Layer 8 (m3)	7,9663E+02	7,9525E+02	7,8191E+02	7,5229E+02
Percolation or leakance through Layer 10 (m3)	6,0135E-02	6,0052E-02	5,9257E-02	5,7519E-02

(continued)

	Year-37 (m3)	Total (m3)
Precipitation (m3)	2,1178E+05	7,8081E+06
Runoff (m3)	5,8124E+04	3,3991E+06
Evapotranspiration (m3)	1,4229E+05	4,2767E+06
Change in water storage (m3)	7,8237E+03	8,8302E+03
Water budget balance (m3)	-3,1806E-03	-1,1727E-01
Soil water (m3)	1,6376E+06	6,0569E+07
Snow water (m3)	1,0524E+04	5,1848E+05

Percolation or leakance through Layer 3 (m3)	3,6439E+03	1,2919E+05
Lateral drainage collected from Layer 6 (m3)	2,7395E+03	9,5435E+04
Percolation or leakance through Layer 7 (m3)	8,0085E+02	2,8038E+04
Lateral drainage collected from Layer 8 (m3)	8,0079E+02	2,8035E+04
Percolation or leakance through Layer 10 (m3)	6,0382E-02	2,1260E+00

A N N E X E « Q C - 1 5 5 »

LOCALISATION APPROXIMATIVE DES ANCIENNES ACTIVITÉS DU LOT 531-P

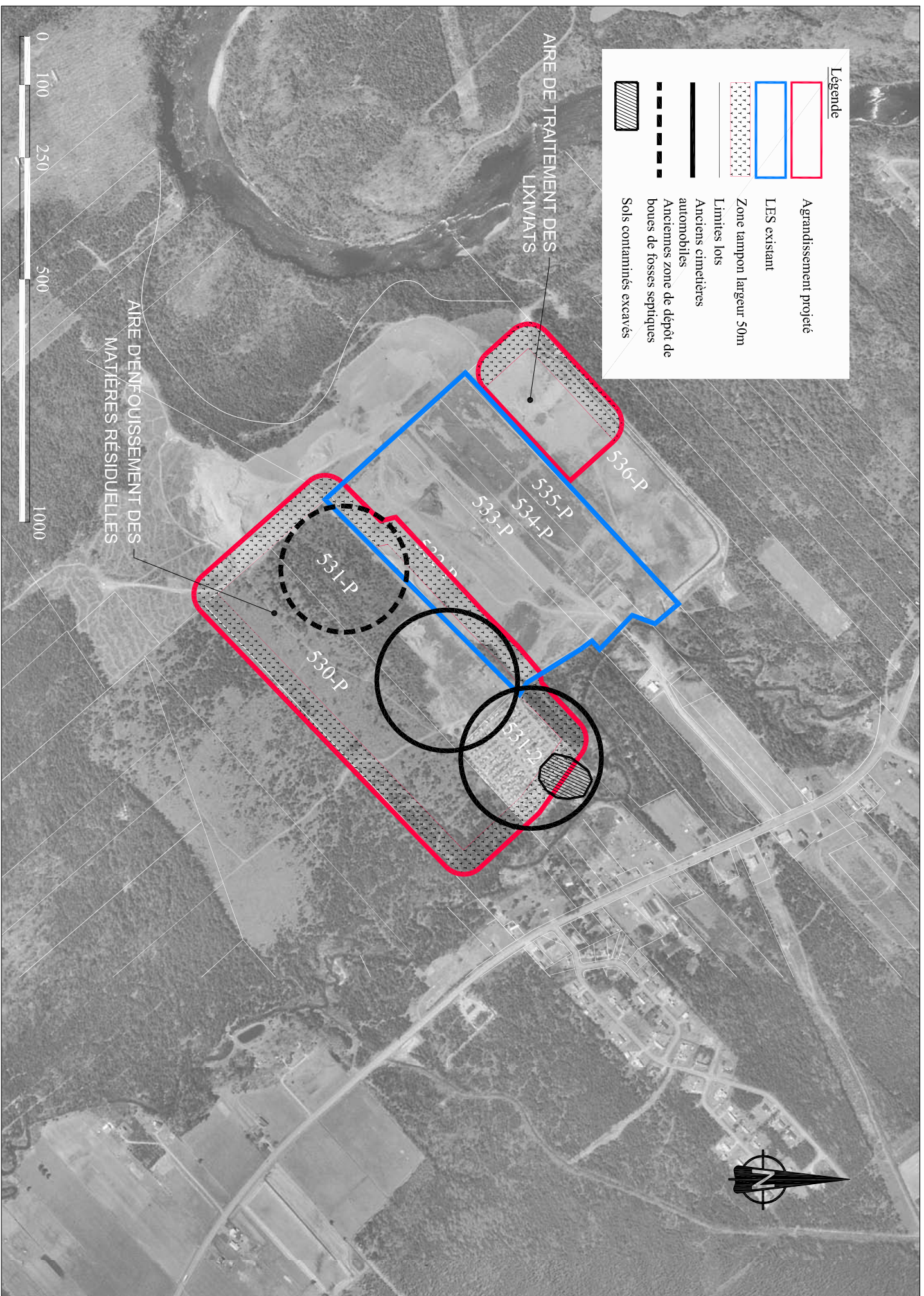
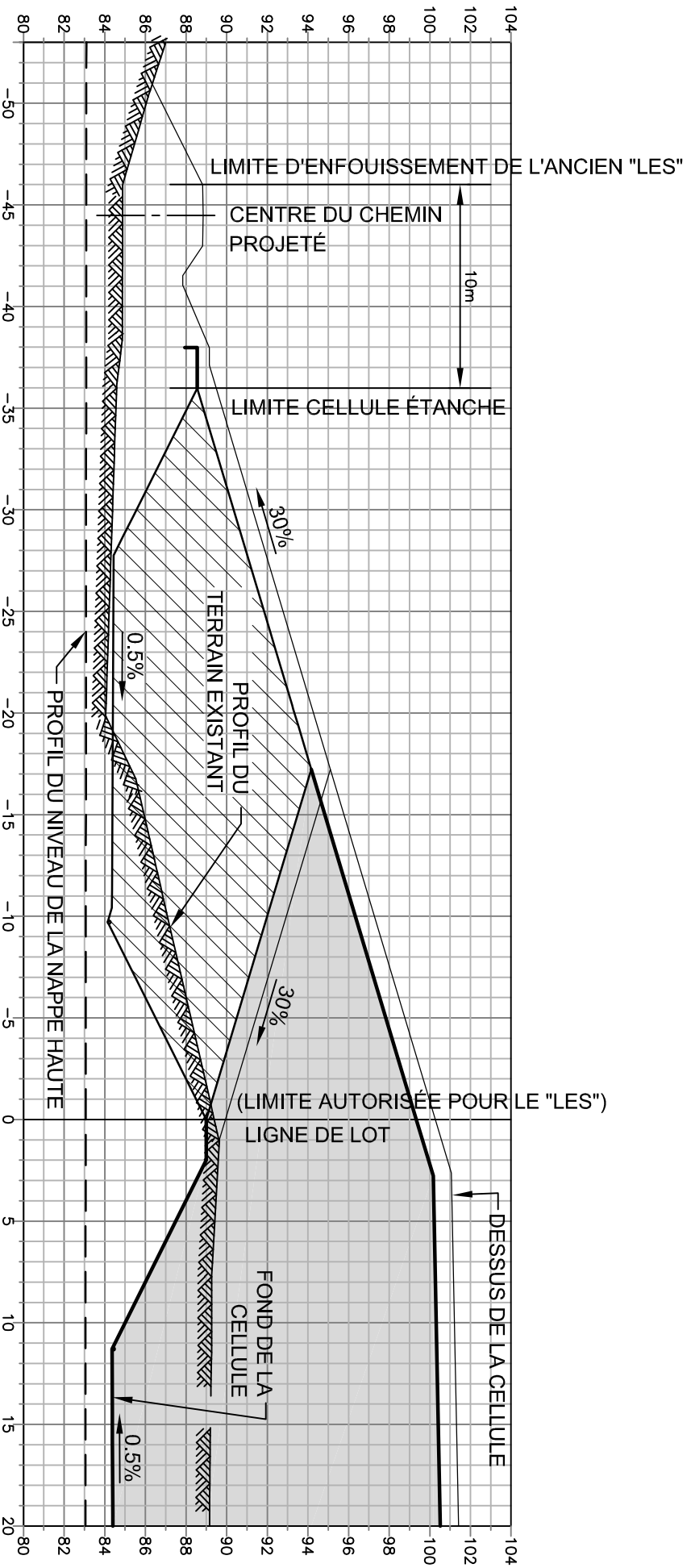
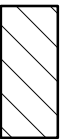




FIGURE QC-155 : LOCALISATION APPROXIMATIVE DES ANCIENNES ACTIVITÉS DU LOT 531-P

A N N E X E « QC-156 »

COUPE DU PROJET D'AGRANDISSEMENT ET DU LES AUTORISÉ TRANSFORMÉ EN LET







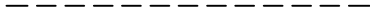

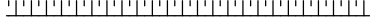

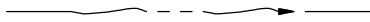

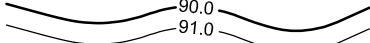

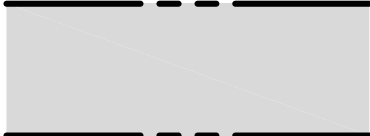






 "LES" TRANSFORMÉ EN "LET"
 (CERTIFICAT D'AUTORISATION OBTENU)
 PROJET D'AGRANDISSEMENT
 PROPOSÉ

 RÉGIE RÉGIONALE DE GESTION DES MATIÈRES RÉSIDUELLES DE PORTNEUF (RRGMRP)		ÉTUDE D'IMPACT SUR L'ENVIRONNEMENT AGRANDISSEMENT DU LES NEUVILLE		PROJET 58465M137	
No.	RÉVISION	PAR	DATE	RIGUEUR ET AUDACE EN INGENIERIE	
0	EMIS POUR RÉPONSE M.D.D.E.P.	D.L.	2008/06/19	ÉCHELLE	RÉVISION
				1:300	0
TITRE COUPE DU PROJET D'AGRANDISSEMENT ET DU "LES" TRANSFORMÉ EN "LET"		DESSINÉ PAR D. LESSARD		APPROUVÉ PAR W. RATEAUD	
		NUMÉRO DE DESSIN 58465M137-QC-156		FEUILLE 1 DE 1	



ANNEXE « QC-161 »

EXTRAIT DU PLAN 58465M137-C-D002

LÉGENDE

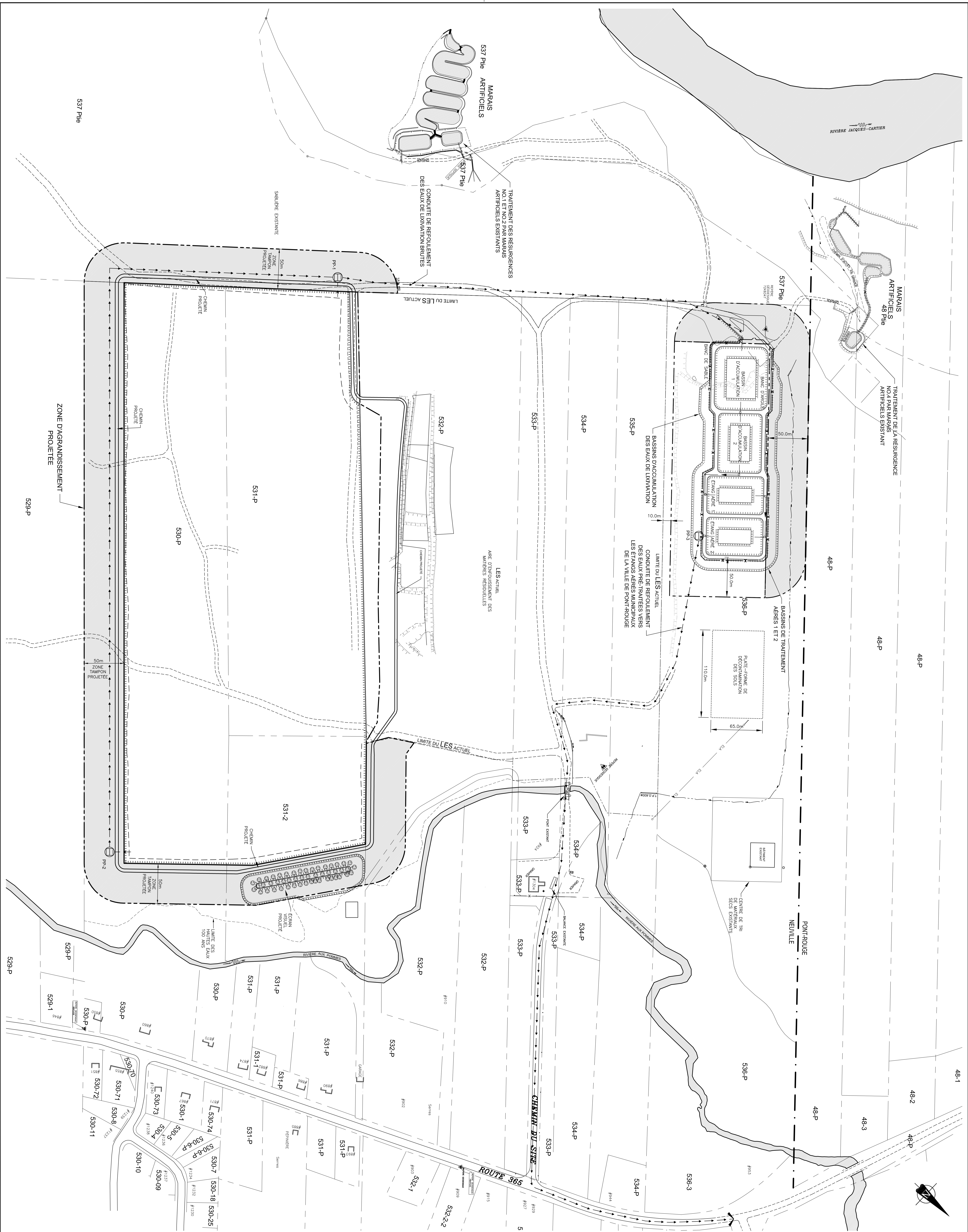
	LIMITE DU L.E.S. ACTUEL
	LIMITE DE LA ZONE D'AGRANDISSEMENT PROJETÉE
	LIGNE DE LOT
	LIMITE MUNICIPALE
	CHEMIN EN GRAVIER
	CHEMIN OU ROUTE PAVÉ
	BAS TALUS
	HAUT TALUS
	CENTRE DU FOSSÉ
	CLÔTURE
	COURBE DE NIVEAU
	PIÉZOMÈTRE
	ZONE TAMPON PROJETÉE
	CONDUITE 150mmØ NON-PERFORÉ
	CONDUITE 100mmØ NON-PERFORÉ
	CONDUITE DE DÉTECTION PEHD 100mmØ PERFORÉE
	CONDUITE DE LIXIVIAT PEHD 150mmØ PERFORÉE
	CONDUITE DE REFOULEMENT
	POSTE DE POMPAGE

FORMAT AV imperial 8.5"X11"

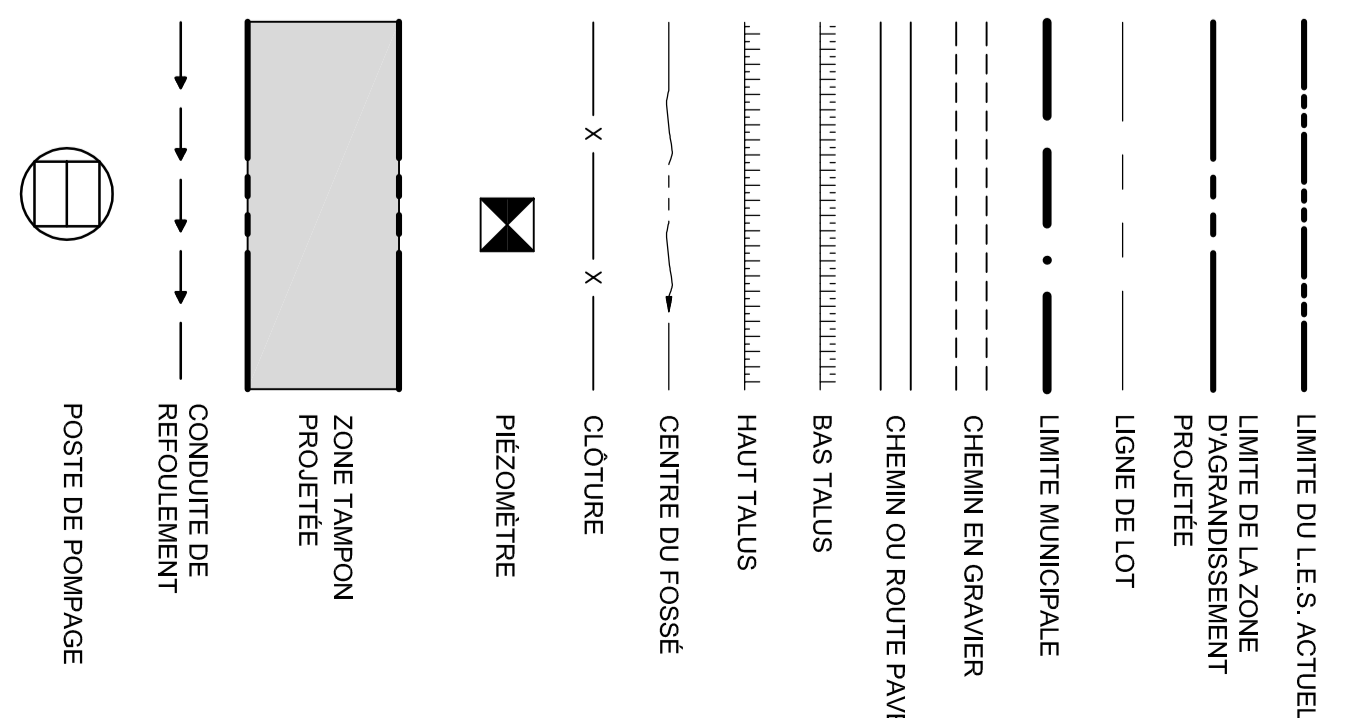
 RÉGIE RÉGIONALE DE GESTION DES MATIÈRES RÉSIDUELLES DE PORTNEUF (RRGMRP)		ÉTUDE D'IMPACT SUR L'ENVIRONNEMENT AGRANDISSEMENT DU LES NEUVILLE		 RIGUEUR ET AUDACE EN INGENIERIE	
No. RÉVISION PAR DATE		TITRE EXTRAIT DU PLAN 58465M137-C-D002 LÉGENDE MODIFIÉE		PROJET 58465M137 ÉCHELLE RÉVISION	
0 ÉMIS POUR RÉPONSE M.D.D.E.P. D.L. 2008-07-28				DATE 2008-07-28 0	
		DESSINÉ PAR D. LESSARD		APPROUVÉ PAR D. GRENIER	
				NUMÉRO DE DESSIN 58465M137-QC-161	
				FEUILLE 1 DE 1	

ANNEXE « QC-169 »

PLAN 58465M137-C-D008 RÉVISÉ



LEGENDE



1	DL	DANS SOUS REPOSE MAJUSC
0008/07/28	0	DANS SOUS RAPPORT ETUDE D'IMPACT
0008/07/17	A	DANS SOUS COMBINAISON
0007/12/21	REC / TECH	DESCRIPTION
02/03/03	SCS/BAUX	REVISIONS ET DIMENSIONS

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 BUREAU DE
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 4555, Boulevard Wilfrid-Hamel
 Québec (Québec) G1P 2J7
 Téléphone : 418 871-8151
 Télécopieur : 418 871-9625
 www.bpr.ca

REGMREP
 RÉGIE RÉGIONALE DE
 GESTION DES
 RESOURCES DE PORNIEUF
 (REGMREP)

PROJET
 ETUDE D'IMPACT
 SUR L'ENVIRONNEMENT
 AGRANDISSEMENT DU LES NEUVILLE
 SYSTEMES DE TRAITEMENT
 DES
 EAUX DE LIXIVATION
 EXISTANT ET PROJETEE

date	dessiné	approuvé
2007/11/19	P. QUÉBEC	S. DAVOISON
client	projet consultant	projet client
11-1900	58465M137	

design numéro
58465M137-C-0008



**PROJET D'AGRANDISSEMENT DU LIEU
D'ENFOUISSEMENT SANITAIRE
DE LA RÉGIE RÉGIONALE DE GESTION DES MATIÈRES
RÉSIDUELLES DE PORTNEUF**

NEUVILLE

ÉTUDE D'IMPACTS SUR L'ENVIRONNEMENT DÉPOSÉE AU MINISTRE DU DÉVELOPPEMENT
DURABLE, ENVIRONNEMENT ET PARCS

5846 5 M 137

**CHAPITRE 8
RÉPONSES AUX QUESTIONS DU MDDEP
VOLUME 2 DE 2 (annexes)**



RIGUEUR ET AUDACE
EN INGÉNIERIE

JUILLET 2008