YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103; Davis, CA 95618

Re-Evaluation of Fugitive Landfill Emissions

		ATC #	C-07-164	
		PTO #	P-15-05(a)	(Reserved)
ENGINEER:	René Toledo	SIC Code #	4953	
		UTM E	613.9	km
FACILITY NAME:	Yolo County Central Landfill	UTM N	4272.2	km

LOCATION: The equipment is located at 44090 County Road 28H in Woodland. The equipment is not located within 1000 feet of a K-12 school and is not subject to the requirements of H&S 42301.6.

REASON FOR RE-EVALUATION: The District performed a public notice (beginning 02/23/2009) for this project and received comments from EPA regarding the model input values used to calculate the emissions from this facility. The District agrees with the recommended changes and is using this re-evaluation to recalculate the proposed emissions. Because these changes result in emissions higher than those previously circulated, the District will re-notice this project.

REVISED PROPOSAL: In response to the District's revised calculation methodology, the landfill's overall collection efficiency has been increased from 75.0% to 94.1%.

For clarity, items and discussions not affected by this re-evaluation will not be discussed in this document.

PROCESS: Municipal solid waste (MSW) landfill fugitive emissions

APPLICATION DATA:

Proposed Design Parameters		Units	Formula Symbol	Reference
Proposed Maximum Design Capacity =	49,035,200	million cubic yards (air space)	-	Applicant [a]
Proposed Maximum Design Capacity =	21,533,210	megagrams (waste in place)	-	Applicant [a]
Initial Year of Operation =	1976		Open	Applicant [a]
Last Year of Known Acceptance =	2008		A	Applicant [b]
Estimated Year of Closure =	2034		Closed	Applicant [c]

[a.] Proposed designed capacity after proposed expansion and height increase (see JTD, Appendix K - submitted 07/2007).

[b.] Based on the site's 2008 Throughput/Production report.

[c.] Based on an the region's expected population growth, Yolo County currently estimates the landfill's closure date as 2082. For permitting purposes, the closure date has been developed using the maximum refuse acceptance rate and a maximum waste design capacity of 49,035,200 cubic yards (see the facility's revised solid waste permit submitted on 12/11/2007 and design capacity calculations received via email 01/30/2008).

Proposed Process Limits		Units	Formula Symbol	Reference
Max. Daily Throughput =	1,800	tons MSW	TA	Applicant [a]
1st Quarter Throughput =	160,200	tons MSW	-	Applicant [b]
2nd Quarter Throughput =	162,000	tons MSW	-	Applicant [b]
3rd Quarter Throughput =	162,000	tons MSW	-	Applicant [b]
4th Quarter Throughput =	162,000	tons MSW	-	Applicant [b]
Max. Yearly Throughput =	646,200	tons MSW	TY	Applicant [a]

[a.] In order to maintain a high level of operational flexibility, the source has requested that the ATC's acceptance rates equal the acceptance rates of it's amended solid waste permit (1800 tons/day and 646,200 tons/year), which represents the total amount of waste accepted by the landfill with no diversion.

[b.] The source has requested that the process limits be amended to reflect that the landfill is closed for business on New Year's Day (January 1), Easter Sunday (2nd Sunday between March 22 and April 25 - assumed to be in the 2nd quarter), Independence day (July 4), Labor Day (1st Monday in September), Thanksgiving Day (November 24) , and Christmas Day (December 25). The request was received as part of the Title V comments (see letter dated March 18, 2009).

ASSUMPTIONS:

Gas Collection System		Units	Formula Symbol	Reference
Minimum Collection Efficiency =	94.1	%	CE	Applicant [a]

[a.] Based on this facility's collection system design, the current Waste Management Unit (WMU) construction and closure schedule, enhanced future monitoring, as well as a review of the available literature, the system's collection efficiency is expected to meet or exceed the above value.

Specifically, the landfill is equipped with an active gas collection system that uses negative pressure to draw landfill gas from the 185 existing collection wells. The traditional WMU's (WMU#3 which has already reached its final capacity and had a final cover installed, and WMU's #1 and 2 are scheduled to begin closure in 2012) have had vertical and horizontal wells installed as the waste was placed in the cells. In addition, WMU's #6D1 and 6D2 are considered "bioreactors" that are equipped with impermeable final covers specifically designed to capture and control nearly 100% of the landfill gas for use in the energy production site. Lastly, all future WMU's will be installed and operated as bioreactors.

As a surrogate to enforce the collection efficiency, the District will require on-going surface monitoring requirements, modeled after the requirements of New Source Performance Standards (NSPS), San Joaquin Valley APCD Rule 4642 and South Coast AQMD Rule 1150.1 (e.g. pre- and post-test calibrations, monitoring frequencies, allowable emission concentration limits).

Miscellaneous Data		Units	Formula Symbol	Reference
1 megagram (Mg) =	1.1023	tons	MG	District
Standard Molar Volume =	385	cubic feet/lb-mole	MV	District
NMOC Molecular Weight =	86.18	g/g-mole	MW	AP-42, Section 2.4, Equation-4 (11/1998)

EMISSION FACTORS:

Analytical Data Summary		Units	Formula Symbol	Reference
Conventional Methane Generation Rate =	0.02	(unitless)	kc	40 CFR, Section 60.754 [a]
Bioreactor Methane Generation Rate =	0.20	(unitless)	kb	Applicant [b]
Site-Specific Methane Generation Potential =	170	m^3/Mg	L	40 CFR, Section 60.754
Uncorrected NMOC Concentration =	940	ppmv, as C_6 (adjusted below)	NMOC	From Emission Eval. C-03-226
Avg. Methane (CH_4)Concentration =	453,000	ppmv	MC	From Emission Eval. C-03-226
Avg. Carbon Dioxide (CO_2) Concentration =	370,000	ppmv	CC	From Emission Eval. C-03-226
Avg. Nitrogen Oxide (NO_2) Concentration =	193,000	ppmv	NC	From Emission Eval. C-03-226
Avg. Oxygen (O_2) Concentration =	5,000	ppmv	OC	From Emission Eval. C-03-226

[a] Based on the average 30 year rainfall measurements, the Sacramento region receives an average of 17.52 inches of rain per year. As such, a methane constant value (k) of 0.02 will be used for the conventional cells.

[b] As proposed by the source, the bioreactor specific methane generation rate (kb) has been adjusted to reflect the data collected from bioreactor sampling data (see source's request dated 04/28/2008).

EPA LandGEM Emission Summary		Units	Formula Symbol	Reference
Max. Uncontrolled NMOC Generation Rate =	778.24	Mg/year	M_{NMOC}	Calculated for Calendar Year 2034[a]
Max. Uncontrolled CH_4 Generation Rate =	117,333,431	m^3/year	Q_{CH4}	Calculated for Calendar Year 2034

[a] The landfill's total uncontrolled NMOC generation rate (in Mg/year) as calculated using the air-infiltration corrected NMOC concentration (CNMOC below) in the LandGEM program (see attached calculations).

EMISSION CALCULATIONS:

1. Determine Ratio of Nitrogen to Oxygen Observed in Landfill Gas Testing:

Ratio of $NO_2 : O_2$ = NC / OC = 39 (unitless)

2. Determine Air-Infiltration Corrected NMOC Concentration for Use in LandGEM Program:

		Formula Symbol
Air-infiltration Corrected NMOC Concentration = (NMOC * 10^6) / (CC + MC + NC + OC) =	925.2 ppm [a]	CNMOC

[a] Per AP-42, Section 2.4, Equation-2 (11/1998), because the ratio of NO2 to O2 is greater than 4, Equation-2 requires that the air infiltration correction equation also be adjusted for the concentration of nitrogen. As such, the calculated NMOC concentration (CNMOC) has been corrected for nitrogen.

3. Determine Maximum Fugitive VOC[a,b] Emissions From Landfill:

		Formula Symbol
Max. Daily VOC Emissions = M_{NMOC} * MG * (2,000 lbs/ton) * (1 year/365 days) * (100% - CE) =	279.6 lbs/day	MD
Max. 1st Quarter VOC Emissions = MD * (90 days/quarter) =	25,165 lbs/quarter	
Max. 2nd Quarter VOC Emissions = MD * (91 days/quarter) =	25,445 lbs/quarter	
Max. 3rd Quarter VOC Emissions = MD * (92 days/quarter) =	25,725 lbs/quarter	
Max. 4th Quarter VOC Emissions = MD * (92 days/quarter) =	25,725 lbs/quarter	
Max. Yearly VOC Emissions = M_{NMOC} * MG * (100% - CE) =	51.03 tons/year	

[a] For permitting purposes, the NMOC emissions will be conservatively assumed to be 100% VOC.

[b] Due to several factors affecting the decomposition of waste, a linear relationship does not exist between the amount of waste being deposited and the amount of fugitive NMOC emissions released by the landfill (see the attached LandGEM emission model summaries).

RULE & REGULATION COMPLIANCE EVALUATION:

This section of the re-evaluation will only address those rules whose compliance might be affected by the changes made in the re-evaluation.

District Rule 3.4-New Source Review

PROPOSED EMISSION SUMMARY FOR NEW OR MODIFIED PERMIT

	Daily	Yearly	
VOC	279.6 lb	51.03 tons	Use for annual billing
CO	0.0 lb	0.00 tons	Use for annual billing
NOx	0.0 lb	0.00 tons	Use for annual billing
SOx	0.0 lb	0.00 tons	Use for annual billing
PM10	0.0 lb	0.00 tons	Use for annual billing

	Quarterly			
	1st	2nd	3rd	4th
VOC (lb)	25,165	25,445	25,725	25,725
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

Previous quarterly potential to emit for modified permit *

	1st	2nd	3rd	4th
VOC (lb)	25,167	25,447	25,726	25,726
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

* The emission limits in the current permit were based on equations in AP-42, Section 2.4 (which were the best emission model available at the time of the previous permitting action). Since the EPA approved model for calculating landfill emissions is now LandGEM, the District has recalculated the potential to emit (PTE) for P-15-05 using the best available science, but with all the existing input values (see attached LandGEM calculations).

Historic potential emissions for modified permit *

	1st	2nd	3rd	4th
VOC (lb)	25,167	25,447	25,726	25,726
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

* Section 220 of Rule 3.4 defines "historical potential emissions" (HPE) as the emissions of a unit prior to a modification based on the emission limits listed in the unit's previous Authority to Construct (ATC) or Permit to Operate (PTO). Section 220 also states that emission limitations are treated as part of an emission unit's design only if the limitations are representative of "normal operations". Lastly, Section 220 specifies that "normal operation" is the usual or typical operation of an emissions unit resulting in "actual emissions" which are at least 80% of the specific limits contained in the unit's previous ATC or PTO.

In determining the PTE for landfills, LandGEM uses the amount of waste-in-place for each year as one of the variables to calculate emissions. Therefore, for the purposes of determining whether the limitations are representative of normal operations, the District will check whether the source has had any one year out of the last five where the actual waste-in-place amounts came within 80% of the projected amounts entered in LandGEM.

From Appendix O of the 2007 JTD (Pages 643-644), the actual waste-in-place amount for the 2006 calendar year was 5,415,825 Mg, which was 85% of the expected design capacity for that operating year (6,726,686 Mg - see Emission Evaluation C-03-226). As such, under the provisions of Section 220, the emission limitations are representative of normal operations and the HPE is equal the previous PTE.

Pollutant	Trigger (lb/day)	BACT Proposed (lb/day)	Quarterly Increase	BACT
VOC	10	280	No	No
CO	250	0	No	No
NOx	10	0	No	No
SOx	80	0	No	No
PM10	80	0	No	No

OFFSETS

Quarterly permitted emissions for other permits at the stationary source *

	1st	2nd	3rd	4th
VOC (lb)	1	1	1	1
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

* Per Policy 25, the calculated post-project PTE for all other permitted units not including the emergency-use IC engines (see Quarterly PTE worksheet revised 06/22/2009).

Quarterly permitted emissions for the stationary source including proposed emissions *

	1st	2nd	3rd	4th
VOC (lb)	25,166	25,446	25,725	25,725
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

* Not including emergency engines.

Offset triggers

	1st	2nd	3rd	4th
VOC (lb)	7,500	7,500	7,500	7,500
CO (lb)	49,500	49,500	49,500	49,500
NOx (lb)	7,500	7,500	7,500	7,500
SOx (lb)	13,650	13,650	13,650	13,650
PM10 (lb)	13,650	13,650	13,650	13,650

Quantity of offsets required

	1st	2nd	3rd	4th
VOC (lb)	0	0	0	0
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

MAJOR MODIFICATION

Facility Total Potential to Emit*	***Major Source Thresholds***
51.04 TPY VOC	25 TPY VOC
0.05 TPY CO	100 TPY CO
0.41 TPY NOx	25 TPY NOx
0.01 TPY SOx	100 TPY SOx
0.00 TPY PM10	100 TPY PM10

* See the attached Quarterly PTE worksheet (revised 06/22/2009).

Last five year emission aggregate*	***Major Modification Thresholds***
0.00 TPY VOC	25 TPY VOC
0.05 TPY CO	100 TPY CO
0.41 TPY NOx	25 TPY NOx
0.01 TPY SOx	40 TPY SOx
0.00 TPY PM10	25 TPY PM10

* See attached 5-Year Emission Aggregate worksheet (revised 06/22/2009).

Result: The proposed modification is not a major modification

PUBLIC NOTICE

"Increase in historic potential to emit"	***Exemption level for notification***
-2 lb VOC/quarter	7,500 lb VOC/quarter
0 lb CO/quarter	49,500 lb CO/quarter
0 lb NOx/quarter	7,500 lb NOx/quarter
0 lb SOx/quarter	13,650 lb SOx/quarter
0 lb PM10/quarter	13,650 lb PM10/quarter

Result: Public notice is not required

District Rule 3.8-Federal Operating Permits
This re-evaluation will be re-noticed in response to the comments received from EPA during the original noticing period (see file).

District Rule 3.20-Ozone Transport Mitigation
As documented above, the facility total PTE is above 10 tons per year for VOC or NOx, and therefore the post-project Stationary Source Potential to Emit (SSPE) will be calculated.

Annual permitted emissions for the stationary source including proposed emissions

VOC (lb)	102,082	lbs
NOx (lb)	826	lbs

Annual permitted emissions for equipment which is exempt from Rule 3.4*

VOC (lb)	19	lbs
NOx (lb)	826	lbs

* Emissions from PTO's P-71-05 and P-25-07 (see the attached Quarterly PTE worksheet revised 06/22/2009).

Post -project Stationary Source Potential to Emit (SSPE)

VOC (lb)	102,063	lbs
NOx (lb)	0	lbs

Because the post-project SSPE is greater than 10 tons (20,000 lbs) per year for VOC or NOx, per section 301.1, calculations shall be performed to determine the quantity of mitigation required, if any.

Pre -project Stationary Source Potential to Emit (SSPE)

VOC (lb)	102,066	lbs
NOx (lb)	0	lbs

Quantity of offsets required by Rule 3.4*

VOC (lb)	0	lbs
NOx (lb)	0	lbs

* Sum of quarterly offset amounts required per Rule 3.4 evaluation.

Quantity of Mitigation required by Rule 3.20

VOC (lb)	0	lbs
NOx (lb)	0	lbs

District Risk Management Plan and Risk Assessment Guidelines

As part of this project, the District will conservatively perform a health risk assessment that accounts for the increase in the facility's capacity and calculates the health risks associated with the landfill's proposed operating parameters. This assessment will first determine the total amount of uncontrolled HAP emissions for all landfill gas constituent outputs of the LandGEM program (see attached). The District will then apply the proposed collection efficiency factor to all HAPs specifically identified in the Federal Clean Air Act (CAA) or the District's RMPRAG.

The District's guidelines require that any new or modified emission unit with an individual cancer risk greater than 1 and not exceeding10 in a million, or a hazardous index (acute or chronic) greater than 1, satisfy Toxic-Best Available Control Technology (T-BACT). While any or project with a total cancer risk above 10 in a million is considered unapprovable. The landfill's health risk assessment is summarized below.

1. All Constituents Present in Uncontrolled Landfill Gas Produced by the Yolo County Central Landfill:

Pollutant Prioritization [a]	CAS Number	Clean Air Act Listed HAP [b] (Yes / No)	RMPRAG Listed HAP [c] (Yes / No)	LandGEM Output for Calendar Year 2034 Conventional (Mg/yr)	Bioreactor (Mg/yr)	Total Uncontrolled HAPs (Mg/yr)	(lb/yr)
1,1,1-Trichloroethane (methyl chloroform) =	71556	Yes	Yes	0.1059	0.5192	0.6250	1,378
1,1,2,2-Tetrachloroethane =	79345	No	No	0.3052	1.4969	1.8021	3,973
1,1-Dichloroethane (ethylidene dichloride) =	75343	Yes	No	0.3927	1.9257	2.3184	5,111
1,1-Dichloroethene (vinylidene chloride) =	75354	Yes	Yes	0.0321	0.1572	0.1892	417
1,2-Dichloroethane (ethylene dichloride) =	107062	Yes	Yes	0.0671	0.3289	0.3960	873
1,2-Dichloropropane (propylene dichloride) =	78875	Yes	No	0.0336	0.1649	0.1985	438
2-Propanol (isopropyl alcohol) =	67630	No	Yes	4.9685	24.3665	29.3350	64,672
Acetone =	-	No	No	0.6721	3.2961	3.9682	8,748
Acrylonitrile =	107131	Yes	Yes	0.5526	2.7101	3.2627	7,193
Benzene (Codisposal) =	71432	Yes	Yes	1.4204	6.9659	8.3863	18,488
Bromodichloromethane =	75274	No	No	0.8396	4.1175	4.9571	10,928
Butane =	-	No	No	0.4804	2.3560	2.8364	6,253
Carbon disulfide =	75150	Yes	Yes	0.0730	0.3580	0.4310	950
Carbon monoxide =	42101	No	No	6.4826	31.7920	38.2746	84,380
Carbon tetrachloride =	56235	Yes	Yes	0.0010	0.0050	0.0060	13.2
Carbonyl sulfide =	463581	Yes	No	0.0487	0.2386	0.2873	633
Chlorobenzene =	108907	Yes	Yes	0.0465	0.2281	0.2747	606
Chlorodifluoromethane =	75456	No	No	0.1858	0.9114	1.0972	2,419
Chloroethane (ethyl chloride) =	75003	Yes	No	0.1387	0.6800	0.8187	1,805
Chloroform =	67663	Yes	Yes	0.0059	0.0290	0.0350	77.1
Chloromethane (methyl chloride) =	74873	Yes	No	0.1002	0.4912	0.5914	1,304
Dichlorobenzene =	25321226	No	Yes	0.0510	0.2503	0.3013	664
Dichlorodifluoromethane =	-	No	No	3.1981	15.6841	18.8822	41,628
Dichlorofluoromethane =	75434	No	No	0.4424	2.1694	2.6118	5,758
Dichloromethane (methylene chloride) =	75092	Yes	No	1.9659	9.6409	11.6067	25,588
Dimethyl sulfide (methyl sulfide) =	-	No	No	0.8011	3.9289	4.7301	10,428
Ethane =	-	No	No	44.2420	216.9701	261.2121	575,868
Ethanol =	-	No	No	2.0568	10.0868	12.1436	26,772
Ethyl mercaptan (ethanethiol) =	-	No	No	0.2362	1.1585	1.3948	3,075
Ethyl benzene =	100414	Yes	Yes	0.8073	3.9591	4.7664	10,508
Ethylene dibromide (Dibromoethane) =	106934	Yes	Yes	0.0003	0.0015	0.0018	4.04
Fluorotrichloromethane =	-	No	No	0.1726	0.8465	1.0191	2,247
Hexane =	110543	Yes	Yes	0.9403	4.6113	5.5516	12,239

Hydrogen =	-	No	No	2.0282	9.9467	11.9749	26,400
Mercury (total) =	7439976	Yes	Yes	0.00010	0.0005	0.0006	1.25
Methyl ethyl ketone =	78933	Yes	Yes	0.8464	4.1508	4.9972	11,017
Methyl isobutyl ketone =	108101	Yes	No	0.3146	1.5429	1.8575	4,095
Methyl mercaptan =	-	No	No	0.1988	0.9751	1.1739	2,588
Pentane =	-	No	No	0.3936	1.9303	2.3239	5,123
Perchloroethylene (tetrachloroethylene) =	127184	Yes	Yes	1.0143	4.9744	5.9887	13,203
Propane =	-	No	No	0.8018	3.9320	4.7337	10,436
t-1,2-dichloroethene =	-	No	No	0.4487	2.2006	2.6493	5,841
Toluene (Co-disposal) =	108883	Yes	Yes	25.8917	126.9774	152.8691	337,015
Trichloroethylene (trichloroethene) =	79016	Yes	Yes	0.6082	2.9828	3.5911	7,917
Vinyl chloride =	75014	Yes	Yes	0.7542	3.6990	4.4532	9,818
Xylenes =	1330207	Yes	Yes	2.1060	10.3281	12.4340	27,412

[a] Landfill gas constituent molar weight and default concentrations listed in AP-42, Section 2.4, Table 2.4-1 and Table 2.4-2 (11/1998).

[b] This column indicates whether the listed constituent is a HAP contained in the Federal Clean Air Act.

[c] This column indicates whether the listed constituent is a HAP contained in the District's RMPRAG.

[d] Per the LandGEM - Ver. 3.02 User's Guide, Section 3.3 (Page 17), the "No or Unknown Co-disposal" values for benzene and toluene should be used if the landfill has not co-disposed of hazardous waste with the MSW. Since the site's specific-NMOC concentration value of 940 ppmv is higher than the default NMOC value of 600 ppmv, the District will use the "Co-disposal" HAP values instead of the "No or Unknown Co-disposal" HAP amounts.

2. Fugitive Emission of Listed HAPs from Yolo County Central Landfill in the Year 2034:
The landfill is served by the active gas collection system under PTO P-26-98(t1) and has been evaluated to have an overall gas collection efficiency of 94.1%. As evaluated below, the remaining 5.9% of uncollected landfill gas will be conservatively assumed to be fugitive emissions.

Pollutant Prioritization [a]	CAS Number	Fugitive HAP Emissions - (lb/hr)	[HAP_{yr}] (lb/year)	- (ton/year)	RMPRAG Screening Level (lb/year)	Less than RMPRAG Screening (Yes / No)
1,1,1-Trichloroethane (methyl chloroform) =	71556	9.36E-03	82.0	0.04	61,800	Yes
1,1-Dichloroethane (ethylidene dichloride) =	75343	3.47E-02	304.0	0.15	-	-
1,1-Dichloroethene (vinylidene chloride) =	75354	2.83E-03	24.82	0.01	6,180	Yes
1,2-Dichloroethane (ethylene dichloride) =	107062	5.93E-03	51.93	0.03	9.70	No
1,2-Dichloropropane (propylene dichloride) =	78875	2.97E-03	26.03	0.01	-	-
2-Propanol (isopropyl alcohol) =	67630	4.39E-01	3,847	1.92	440,000	Yes
Acrylonitrile =	107131	4.88E-02	427.9	0.21	0.67	No
Benzene (Co-Disposal) =	71432	1.26E-01	1,099.8	0.55	6.70	No
Carbon disulfide =	75150	6.45E-03	56.5	0.03	14,300	Yes
Carbon tetrachloride =	56235	8.99E-05	0.79	0.00	4.60	Yes
Carbonyl sulfide =	463581	4.30E-03	37.68	0.02	-	-
Chlorobenzene =	108907	4.11E-03	36.02	0.02	13,500	Yes
Chloroethane (ethyl chloride) =	75003	1.23E-02	107.36	0.05	-	-
Chloroform =	67663	5.23E-04	4.58	0.00	36.0	Yes
Chloromethane (methyl chloride) =	74873	8.85E-03	77.55	0.04	-	-
Dichlorobenzene =	25321226	4.51E-03	39.51	0.02	68.0	Yes
Dichloromethane (methylene chloride) =	75092	1.74E-01	1,522	0.76	-	-
Ethyl benzene =	100414	7.14E-02	625.1	0.31	193,000	Yes
Ethylene dibromide (Dibromoethane) =	106934	2.75E-05	0.2405	0.00	2.70	Yes
Hexane =	110543	8.31E-02	728.1	0.36	83,000	Yes
Mercury (total) =	7439976	8.50E-06	0.074	0.00	57.9	Yes
Methyl ethyl ketone =	78933	7.48E-02	655.3	0.33	149,000	Yes
Methyl isobutyl ketone =	108101	2.78E-02	243.6	0.12	-	-
Perchloroethylene (tetrachloroethylene) =	127184	8.97E-02	785.4	0.39	33.0	No
Toluene (Co-Disposal =	108883	2.29E+00	20,047.6	10.02	38,600	Yes
Trichloroethylene (trichloroethene) =	79016	5.38E-02	470.9	0.24	97.0	No
Vinyl chloride =	75014	6.67E-02	584.0	0.29	2.50	No
Xylenes =	1330207	1.86E-01	1,631	0.82	57,900	Yes
Maximum Yearly Single Fugitive HAP Emission Rate in 2034 (tons/year) =				**10.02**		
Maximum Yearly Fugitive HAPS Emission Rate in 2034 (tons/year) =				**16.76**		

Formula Symbol
HAPS

[a] Only emissions from the landfill gas constituents contained in the Federal CCA or the RMPRAG have been evaluated.

Because the emissions from several HAPs were above their respective prioritization levels, a health risk assessment was performed for this project. The dispersion modeling and health risks were evaluated using CARB's Hotspots Analysis Reporting Program (HARP) which accounts for site specific parameters (e.g. area source dimensions, UTM location, meteorological data, etc.).

3. Summary of Health Risk Analysis for the Fugitive Landfill Emissions in the Year 2034:
The District is using the highest risk values of each receptor type to demonstrate compliance with the RMPRAG requirements. The cancer and hazard indexes were evaluated over a 4,000 meter by 4,000 meter grid. The residential receptor's cancer risk has been modeled over a 70 year period, while the worksite

receptor's risk has been modeled over 46 years, using the landfill's highest methane generation rate of Q_{CH4} (117,333,431 m^3/year) for the year 2034.

Specifically, the site was modeled as a rectangular area source with a total surface area of 473 acres (or 20,603,880 square feet) and a width to length ratio 1:2. The emission release height was calculated as the average height of the two final WMU design heights of 81.4 feet (for Units 1-6D) and 141.4 feet (for Units 6E-7P). Currently, the nearest residential receptor is located 0.25 miles (400 meters) south of the YCCL property. The nearest worksite receptor is the Davis Wastewater Treatment Plant whose main office building is located southeast of the landfill and roughly 0.33 miles (500 meters) from the nearest property line (see the attached risk isopleths). The health risk assessment results are summarized below.

Receptor Type	Receptor No.	Acute Hazard Index (unitless)	Chronic Hazard Index (unitless)	Individual Cancer Risk (per million)
Residential - Rural Home	1392	0.0003	0.0002	0.38
Worksite - Wastewater Treatment Plant	1391	0.0003	0.0007	0.23

When evaluated at the highest methane production rate, the facility's acute and chronic hazard indexes are each calculated to be less than 1, and the maximum residential cancer risk is not greater than 1 in a million. As such, the application does not trigger T-BACT requirements.

4. Final HAP Emission for all Collocated Facilities Including the Yolo County Central Landfill:
For the purposes of 40 CFR Part 63, Subpart AAAA (Municipal Solid Waste Landfills), the following table lists the total HAP emissions currently permitted for the other collocated facilities at the landfill, as well as other permitted equipment operated by Yolo County. The emission totals will be used in the applicability determination of Subpart AAAA. The collocated facilities include the control emissions of MM Yolo Power LLC and NEO Yolo LLC, and the uncontrolled diesel emissions from the diesel fired IC engines operated by Recycle America Alliance and Yolo County.

As summarized below, the highest quantity of any single HAP emitted annually at the landfill is 2 tons (Toluene), while the total amount of HAPs emitted from all of the collocated facilities is 7.8 tons.

Pollutant Prioritization	CAS Number	Controlled HAP Emissions		Uncontrolled HAP Emissions		Total Speciated HAP Emissions
		MM Yolo Power LLC [a] (lb/year)	NEO Yolo LLC [b] (tons/year)	YCCL Diesel Engines [d] (tons/year)	YCCL Fugitive Emissions (tons/year)	(tons/year)
1,1,1-Trichloroethane (methyl chloroform) =	71556	0.00367	0.00197	-	0.04098	0.04662
1,1-Dichloroethane (ethylidene dichloride) =	75343	-	0.00716	-	0.15202	0.15918
1,1-Dichloroethene (vinylidene chloride) =	75354	-	0.00060	-	0.01241	0.01301
1,2-Dichloroethane (ethylene dichloride) =	107062	0.00184	0.00125	-	0.02597	0.02905
1,2-Dichloropropane (propylene dichloride) =	78875	-	0.00063	-	0.01302	0.01364
2-Propanol (isopropyl alcohol) =	67630	-	0.09272	-	1.92354	2.01626
Acetaldehyde =	75070	-	-	0.00026	-	0.00026
Acroline =	107028	-	-	0.00003	-	0.00003
Acrylonitrile =	107131	-	0.01034	-	0.21394	0.22428
Benzene =	71432	0.06418	0.00459	0.00032	-	0.06909
1,3-Butadiene =	106990	-	-	0.00001	-	0.00001
Carbon disulfide =	75150	-	0.00136	-	0.02826	0.02962
Carbon tetrachloride =	56235	0.00285	0.00002	-	0.00039	0.00327
Carbonyl sulfide =	463581	-	0.00091	-	0.01884	0.01974
Chlorobenzene =	108907	-	0.00087	-	0.01801	0.01888
Chloroethane (ethyl chloride) =	75003	-	0.00248	-	0.05368	0.05616
Chloroform =	67663	0.00221	0.00011	-	0.00229	0.00461
Chloromethane (methyl chloride) =	74873	-	0.00188	-	0.03878	0.04066
Dichlorobenzene =	25321226	-	0.00095	-	0.01976	0.02071
Dichloromethane (methylene chloride) =	75092	0.08178	0.03740	-	0.76107	0.88025
Ethyl benzene =	100414	-	0.01507	-	0.31254	0.32761
Ethylene dibromide (Dibromoethane) =	106934	0.00349	0.00001	-	0.00012	0.00361
Formaldehyde =	50000	0.47310	-	0.00041	-	0.47351
Hexane =	110543	-	0.01743	-	0.36403	0.38146
Hydrogen chloride =	-	0.55012	-	-	-	0.55012
Mercury (total) [e] =	7439976	0.00009	0.00009	-	0.00004	0.00022
Methyl ethyl ketone =	78933	-	0.01574	-	0.32767	0.34341
Methyl isobutyl ketone =	108101	-	0.00577	-	0.12180	0.12756
Unspeciated PAHs =	-	0.00333	-	-	-	0.00333
PAH - Benzo(a)anthracene =	-	0.00008	-	0.0000006	-	0.00008
PAH - Benzo(a)pyrene =	50328	0.00013	-	0.00000005	-	0.00013
PAH - Benzo(b)fluoranthene =	205992	0.00019	-	0.00000003	-	0.00019
PAH - Benzo(k)fluoranthene =	207089	0.00016	-	-	-	0.00016
PAH - Dibenz(a,h)anthracene =	-	0.00020	-	0.0000002	-	0.00020
PAH - Indeno[1,2,3-cd]pyrene =	193395	-	-	0.0000001	-	0.0000001
PAH - Naphthalene =	91203	0.03568	-	0.00003	-	0.03571
Perchloroethylene (tetrachloroethylene) =	127184	0.00462	0.01904	-	0.39269	0.41635

Propylene =	115071	-	-	0.0009	-	0.00089
Toluene =	108883	-	0.11148	0.00014	-	0.11162
Trichloroethylene (trichloroethene) =	79016	0.00305	0.01141	-	0.23547	0.24993
Vinyl chloride =	75014	0.00145	0.01412	-	0.29200	0.30758
Xylenes =	1330207	-	0.03955	0.00010	0.81532	0.85496
Max. Single HAP Yearly Emission Rate (tons/year) =		**0.550**	**0.111**	**0.001**	**1.924**	**2.016**
Max. HAPS Yearly Emission Rate (tons/year) =		**1.23**	**0.41**	**0.002**	**6.185**	**7.834**

a. Sum of HAP emissions totals from ATC emission evaluations C-04-151, C-04-152, C-04-153, C-04-179, and C-04-180 (five landfill gas fired IC engines).

b. Per AP-42, Table 2.4-3 (11/1998), using the minimum HAP destruction efficiency for combustion of landfill gas in a flare (halogenated species).

c. Sum of HAP emissions totals from ATC emission evaluations C-00-119 and C-00-120 (two diesel fired IC engines).

d. Sum of HAP emissions totals from ATC emission evaluations C-06-116 and C-06-169 (two diesel fired IC engines).

e. Per AP-42, Table 2.4-3, footnote (b), zero destruction associated with the combustion of mercury in any landfill gas control devices.

40 CFR Part 61, Subpart M-National Emission Standards for Asbestos

Per YCCL's comments (received 03/18/2009), the source has not received or disposed of any non-friable asbestos containing waste from construction or demolition sources. As such, the source is not subject to the requirements of this subpart. Since the site's Waste Discharge Requirements (WDRs) (approved in December 2007) by the California Regional Water Quality Control Board (Order No. R5-2007-0180) prohibits the landfill from accepting any waste containing friable asbestos. Since the facility is permitted only to dispose of non-friable asbestos containing waste (e.g. is not a mill, an applicator, or a manufacturer of asbestos), it will be subject only to the requirements of Section 61.154 once it begins to accept this type of waste. The revised permit will contain the following condition:

- Prior to disposing of asbestos-containing materials in the landfill, the Permit Holder shall comply with the applicable requirements for active disposal sites set forth in 40 CFR Part 61, Subpart M - National Emission Standard for Asbestos. [40 CFR Part 61.140]

Section 61.154(a) requires that there be no visible emissions to the outside air from any active waste disposal site where asbestos containing waste material has been deposited, except as allowed by Section 61.154(c) or (d). Because Section 61.154(b) pertains to fencing and warning sign requirements not specifically relating to air quality requirements, the conditions of the section will not be listed on the permit. Also, Sections 61.154(e), (i) and (j), require specific noticing and records be maintained on site covering the acceptance, disposal, and mining of waste at the facility (see 2007 JTD, Appendix E).

COMMENTS:

This re-evaluation does not trigger BACT or offsets, and will be re-noticing per Title-V permitting requirements.

To ensure the source's compliance with the findings of this re-evaluation, the following requirements have been amended and will be placed on the permit as part of New Source Review (Rule 3.4):

Landfill Surface Emission Monitoring: As previously discussed the source is not yet subject to the collection and capture requirements of Subpart WWW, however, in order to assure that the existing gas collection system is properly maintained and operated, as well as to verify the system's control efficiency, the District will place the following operating conditions on the permit (as modeled after San Joaquin Valley APCD Rule 4642, Solid Waste Disposal Sites):

- Except for active disposal areas, or areas undergoing maintenance, repair, modification or closure, the surface emissions at any point on the surface of the landfill or along the gas transfer path of the gas collection system shall not exceed a non-methane organic compound (NMOC) concentration of 500 ppmv (measured as methane). Any reading of 500 ppm or more above background at any location shall be recorded as a monitored exceedance and the actions specified in 40 CFR Part 60.755(c)(4)(i) through (c)(4)(v) shall be taken by the owner or operator of the gas collection system. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of this permit or 40 CFR Part 60.753(d).

- The Permit Holder shall perform surface emission testing using a portable hydrocarbon detection test instrument to measure the surface emission concentrations of the landfill and gas collection system. The instrument shall be calibrated before and after each test using zero air and an approximately 500 ppmv methane based standard calibration gas in accordance with the manufacturer's recommendations. The instrument serial number and instrument calibration data shall be recorded for each calibration and maintained as a permanent record.

- The Permit Holder or operator shall perform the surface emission monitoring using the following procedure:

a. The detector is to be held within three (3) inches of the surface while walking a pattern of parallel paths not more than 90 feet apart over:

i. the entire surface area of the landfill site which contains buried refuse;
ii. the gas transfer path of the gas collection system;
iii. cracks, holes and other breaches in the solid waste disposal site cover;
iv. active and in-active mining areas; and
v. the WMU perimeters (i.e. accessible areas where buried waste interfaces with undisturbed native soil).

b. The operator shall monitor the instrument readings at least once every 30 seconds, at normal walking speed (approximately 2 miles per hour), record only the readings that exceed 500 ppmv, and geographically locate the specific area on the landfill surface where the exceedances occur.

c. Sampling is not required on steep slopes or other areas posing an unavoidable hazard to testing personnel.

d. Average wind speed shall be determined on a ten-minute average using an on-site anemometer.

e. Testing shall be terminated when the average wind speed exceeds five (5) miles per hour, or the instantaneous wind speed exceeds ten (10) miles per hour.

f. Testing shall be conducted when there has been no rain for 72 hours prior to the testing event and no rain is falling.

- The Permit Holder shall perform surface emission testing at the landfill at least once every six (6) consecutive calendar months. The Permit Holder may reduce the testing frequency to a twelve (12) consecutive calendar month period, after the completion of two (2) successive semi-annual tests without an exceedance of the 500 ppmv standard, other than non-repeatable momentary readings. Subsequent exceedances of the 500 ppmv emission concentration shall result in the re-establishment of the six (6) month testing frequency. A non-resettable momentary reading shall be defined as a portable hydrocarbon detection test instrument reading which persist for less than five (5) seconds and does not recur when the sampling probe is placed in the same location.

Landfill Cell Mining and Emission Monitoring: Based on the comments received from EPA and the applicant during the previous noticing periods, the District has revised the following mining and composting related conditions:

- Prior to beginning any landfill mining operations, the Permit Holder shall submit for approval a mining and sorting plan to the District. The Permit Holder shall only mine (e.g. excavation, reclaiming, etc.) and sort waste from the aerobic bioreactor cell WMU 6D-Phase 1 (WMU 6D-1).

- Prior to beginning any removal of composted organic waste, the Permit Holder shall submit for approval a composting plan to the District. The Permit Holder shall only remove composted waste from the anaerobic digester cells located in WMU 6D-Phase 2 (WMU 6D-2). (Staff has chosen not to further define "organic waste" in the permit in order to afford the operational flexibility in performing the in-cell composting. As explained in an email (dated January 27, 2009) from Yolo County Senior Civil Engineer Ramin Yazdani, P.E., "other" organic wastes not including food and green waste may include manure (as a source of nitrogen), paper, oil, wood products, and agricultural waste (as sources of carbon).)

- The Permit Holder shall at start-up, and at least once every fourteen (14) days thereafter, monitor the landfill gas emissions from any open faces, active mining surfaces, and/or any liquids present during the mining of a waste cell in order to determine that the NMOC surface emission concentration limit of 500 ppmv (measured as methane) is not exceeded. (It is expected that the District will place more detailed mining related operating conditions (e.g. notification, particulate matter emission control, process limits, etc.) on the operating permit pertaining specifically to the screening and sorting operation.)

- Whenever buried solid waste is brought to the surface during the installation or preparation of wells, trenches, piping, or other equipment or when landfill solid waste is excavated or moved, the Permit Holder shall cover the excavated solid waste using fresh soil, plastic sheeting, or vapor retarding foam as necessary in order to prevent odorous emissions and to minimize the release of landfill gas (modeled from SJVAPCD Rule 4642).

RECOMMENDATIONS: Begin the required public and regulatory comment period for the revised proposed ATC.

Engineer: Rene Tolentino **Date:** 07/06/2009

Reviewed by: Susan K O'Donnell **Date:** 7/6/09

INPUT REVIEW

Landfill Name or Identifier: YCCL ATC C-07-164 Conventional Cells

LANDFILL CHARACTERISTICS

Landfill Open Year	**1976**	
Landfill Closure Year (with 80-year limit)	**2016**	
Actual Closure Year (without limit)	***2016***	
Have Model Calculate Closure Year?	**Yes**	
Waste Design Capacity	**10,886,329**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	*$year^{-1}$*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**925**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1: **NMOC**

Gas / Pollutant #2: **Methane**

Gas / Pollutant #3:

Gas / Pollutant #4:

Description/Comments:
Revised calculation to determine the uncontrolled NMOC and CH4 emissions from the existing conventional landfill waste management cells (25 million cubic feet / 10,886,326 Mg). Existing bioreactor waste cells (WMU 6D1 and 6D2) have been included in this evaluation.

WASTE ACCEPTANCE RATES

Year	(Mg/year)	(short tons/year)
1976	66,387	73,026
1977	111,892	123,081
1978	130,185	143,204
1979	155,400	170,940
1980	186,771	205,448
1981	232,381	255,619
1982	238,993	262,892
1983	245,259	269,785
1984	207,196	227,916
1985	214,814	236,295
1986	232,871	256,158
1987	262,157	288,373
1988	232,389	255,628
1989	265,136	291,650
1990	213,145	234,460
1991	231,143	254,257
1992	189,361	208,297
1993	146,855	161,541
1994	140,256	154,282
1995	139,072	152,979
1996	136,541	150,195
1997	135,307	148,838
1998	171,547	188,702
1999	177,224	194,946
2000	151,865	167,052
2001	150,845	165,930
2002	148,704	163,574
2003	156,342	171,976
2004	167,514	184,265
2005	178,273	196,100
2006	176,202	193,822
2007	173,199	190,519
2008	586,229	644,852
2009	586,229	644,852
2010	586,229	644,852
2011	586,229	644,852
2012	586,229	644,852
2013	586,229	644,852
2014	586,229	644,852
2015	586,229	644,852
2016	431,273	474,400

Results

Year	NMOC			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1976	0	0	0	0	0	0
1977	1.484E+00	4.139E+02	2.781E-02	1.492E+02	2.237E+05	1.503E+01
1978	3.955E+00	1.103E+03	7.414E-02	3.978E+02	5.963E+05	4.007E+01
1979	6.786E+00	1.893E+03	1.272E-01	6.826E+02	1.023E+06	6.875E+01
1980	1.013E+01	2.825E+03	1.898E-01	1.018E+03	1.527E+06	1.026E+02
1981	1.410E+01	3.933E+03	2.643E-01	1.418E+03	2.126E+06	1.428E+02
1982	1.901E+01	5.304E+03	3.564E-01	1.912E+03	2.867E+06	1.926E+02
1983	2.398E+01	6.689E+03	4.495E-01	2.412E+03	3.615E+06	2.429E+02
1984	2.898E+01	8.086E+03	5.433E-01	2.915E+03	4.370E+06	2.936E+02
1985	3.304E+01	9.218E+03	6.194E-01	3.323E+03	4.982E+06	3.347E+02
1986	3.719E+01	1.037E+04	6.971E-01	3.741E+03	5.607E+06	3.767E+02
1987	4.166E+01	1.162E+04	7.808E-01	4.190E+03	6.280E+06	4.220E+02
1988	4.669E+01	1.303E+04	8.752E-01	4.696E+03	7.039E+06	4.730E+02
1989	5.096E+01	1.422E+04	9.552E-01	5.126E+03	7.683E+06	5.162E+02
1990	5.588E+01	1.559E+04	1.047E+00	5.620E+03	8.424E+06	5.660E+02
1991	5.953E+01	1.661E+04	1.116E+00	5.988E+03	8.976E+06	6.031E+02
1992	6.352E+01	1.772E+04	1.191E+00	6.389E+03	9.577E+06	6.435E+02
1993	6.650E+01	1.855E+04	1.246E+00	6.688E+03	1.003E+07	6.736E+02
1994	6.846E+01	1.910E+04	1.283E+00	6.886E+03	1.032E+07	6.935E+02
1995	7.024E+01	1.960E+04	1.317E+00	7.065E+03	1.059E+07	7.115E+02
1996	7.196E+01	2.007E+04	1.349E+00	7.238E+03	1.085E+07	7.289E+02
1997	7.358E+01	2.053E+04	1.379E+00	7.401E+03	1.109E+07	7.454E+02
1998	7.515E+01	2.097E+04	1.409E+00	7.559E+03	1.133E+07	7.613E+02
1999	7.750E+01	2.162E+04	1.453E+00	7.795E+03	1.168E+07	7.850E+02
2000	7.992E+01	2.230E+04	1.498E+00	8.039E+03	1.205E+07	8.096E+02
2001	8.173E+01	2.280E+04	1.532E+00	8.221E+03	1.232E+07	8.280E+02
2002	8.349E+01	2.329E+04	1.565E+00	8.398E+03	1.259E+07	8.457E+02
2003	8.516E+01	2.376E+04	1.596E+00	8.566E+03	1.284E+07	8.627E+02
2004	8.697E+01	2.426E+04	1.630E+00	8.747E+03	1.311E+07	8.810E+02
2005	8.899E+01	2.483E+04	1.668E+00	8.951E+03	1.342E+07	9.015E+02
2006	9.121E+01	2.545E+04	1.710E+00	9.174E+03	1.375E+07	9.240E+02
2007	9.334E+01	2.604E+04	1.750E+00	9.389E+03	1.407E+07	9.456E+02
2008	9.536E+01	2.660E+04	1.788E+00	9.592E+03	1.438E+07	9.660E+02
2009	1.066E+02	2.973E+04	1.998E+00	1.072E+04	1.607E+07	1.080E+03
2010	1.176E+02	3.280E+04	2.204E+00	1.183E+04	1.773E+07	1.191E+03
2011	1.283E+02	3.581E+04	2.406E+00	1.291E+04	1.935E+07	1.300E+03
2012	1.389E+02	3.875E+04	2.604E+00	1.397E+04	2.094E+07	1.407E+03
2013	1.493E+02	4.164E+04	2.798E+00	1.501E+04	2.250E+07	1.512E+03
2014	1.594E+02	4.447E+04	2.988E+00	1.603E+04	2.403E+07	1.615E+03
2015	1.693E+02	4.724E+04	3.174E+00	1.703E+04	2.553E+07	1.716E+03
2016	1.791E+02	4.996E+04	3.357E+00	1.801E+04	2.700E+07	1.814E+03
2017	1.852E+02	5.166E+04	3.471E+00	1.863E+04	2.792E+07	1.876E+03
2018	1.815E+02	5.064E+04	3.403E+00	1.826E+04	2.737E+07	1.839E+03
2019	1.779E+02	4.964E+04	3.335E+00	1.790E+04	2.683E+07	1.802E+03
2020	1.744E+02	4.866E+04	3.269E+00	1.754E+04	2.629E+07	1.767E+03
2021	1.710E+02	4.769E+04	3.204E+00	1.719E+04	2.577E+07	1.732E+03
2022	1.676E+02	4.675E+04	3.141E+00	1.685E+04	2.526E+07	1.697E+03
2023	1.642E+02	4.582E+04	3.079E+00	1.652E+04	2.476E+07	1.664E+03
2024	1.610E+02	4.491E+04	3.018E+00	1.619E+04	2.427E+07	1.631E+03
2025	1.578E+02	4.403E+04	2.958E+00	1.587E+04	2.379E+07	1.599E+03

Results (Continued)

Year	NMOC			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
2026	1.547E+02	4.315E+04	2.899E+00	1.556E+04	2.332E+07	1.567E+03
2027	1.516E+02	4.230E+04	2.842E+00	1.525E+04	2.286E+07	1.536E+03
2028	1.486E+02	4.146E+04	2.786E+00	1.495E+04	2.241E+07	1.506E+03
2029	1.457E+02	4.064E+04	2.731E+00	1.465E+04	2.196E+07	1.476E+03
2030	1.428E+02	3.984E+04	2.677E+00	1.436E+04	2.153E+07	1.446E+03
2031	1.400E+02	3.905E+04	2.624E+00	1.408E+04	2.110E+07	1.418E+03
2032	1.372E+02	3.827E+04	2.572E+00	1.380E+04	2.068E+07	1.390E+03
2033	1.345E+02	3.752E+04	2.521E+00	1.353E+04	2.027E+07	1.362E+03
2034	1.318E+02	3.677E+04	2.471E+00	1.326E+04	1.987E+07	1.335E+03
2035	1.292E+02	3.604E+04	2.422E+00	1.300E+04	1.948E+07	1.309E+03
2036	1.266E+02	3.533E+04	2.374E+00	1.274E+04	1.909E+07	1.283E+03
2037	1.241E+02	3.463E+04	2.327E+00	1.249E+04	1.872E+07	1.258E+03
2038	1.217E+02	3.395E+04	2.281E+00	1.224E+04	1.835E+07	1.233E+03
2039	1.193E+02	3.327E+04	2.236E+00	1.200E+04	1.798E+07	1.208E+03
2040	1.169E+02	3.261E+04	2.191E+00	1.176E+04	1.763E+07	1.184E+03
2041	1.146E+02	3.197E+04	2.148E+00	1.153E+04	1.728E+07	1.161E+03
2042	1.123E+02	3.134E+04	2.105E+00	1.130E+04	1.693E+07	1.138E+03
2043	1.101E+02	3.072E+04	2.064E+00	1.107E+04	1.660E+07	1.115E+03
2044	1.079E+02	3.011E+04	2.023E+00	1.085E+04	1.627E+07	1.093E+03
2045	1.058E+02	2.951E+04	1.983E+00	1.064E+04	1.595E+07	1.072E+03
2046	1.037E+02	2.893E+04	1.944E+00	1.043E+04	1.563E+07	1.050E+03
2047	1.016E+02	2.835E+04	1.905E+00	1.022E+04	1.532E+07	1.030E+03
2048	9.962E+01	2.779E+04	1.867E+00	1.002E+04	1.502E+07	1.009E+03
2049	9.765E+01	2.724E+04	1.830E+00	9.822E+03	1.472E+07	9.892E+02
2050	9.571E+01	2.670E+04	1.794E+00	9.627E+03	1.443E+07	9.696E+02
2051	9.382E+01	2.617E+04	1.759E+00	9.437E+03	1.414E+07	9.504E+02
2052	9.196E+01	2.566E+04	1.724E+00	9.250E+03	1.386E+07	9.316E+02
2053	9.014E+01	2.515E+04	1.690E+00	9.067E+03	1.359E+07	9.131E+02
2054	8.836E+01	2.465E+04	1.656E+00	8.887E+03	1.332E+07	8.951E+02
2055	8.661E+01	2.416E+04	1.623E+00	8.711E+03	1.306E+07	8.773E+02
2056	8.489E+01	2.368E+04	1.591E+00	8.539E+03	1.280E+07	8.600E+02
2057	8.321E+01	2.321E+04	1.560E+00	8.370E+03	1.255E+07	8.429E+02
2058	8.156E+01	2.275E+04	1.529E+00	8.204E+03	1.230E+07	8.262E+02
2059	7.995E+01	2.230E+04	1.499E+00	8.042E+03	1.205E+07	8.099E+02
2060	7.836E+01	2.186E+04	1.469E+00	7.882E+03	1.181E+07	7.938E+02
2061	7.681E+01	2.143E+04	1.440E+00	7.726E+03	1.158E+07	7.781E+02
2062	7.529E+01	2.101E+04	1.411E+00	7.573E+03	1.135E+07	7.627E+02
2063	7.380E+01	2.059E+04	1.383E+00	7.423E+03	1.113E+07	7.476E+02
2064	7.234E+01	2.018E+04	1.356E+00	7.276E+03	1.091E+07	7.328E+02
2065	7.091E+01	1.978E+04	1.329E+00	7.132E+03	1.069E+07	7.183E+02
2066	6.950E+01	1.939E+04	1.303E+00	6.991E+03	1.048E+07	7.041E+02
2067	6.813E+01	1.901E+04	1.277E+00	6.853E+03	1.027E+07	6.901E+02
2068	6.678E+01	1.863E+04	1.252E+00	6.717E+03	1.007E+07	6.765E+02
2069	6.546E+01	1.826E+04	1.227E+00	6.584E+03	9.869E+06	6.631E+02
2070	6.416E+01	1.790E+04	1.203E+00	6.453E+03	9.673E+06	6.499E+02
2071	6.289E+01	1.754E+04	1.179E+00	6.326E+03	9.482E+06	6.371E+02
2072	6.164E+01	1.720E+04	1.155E+00	6.200E+03	9.294E+06	6.245E+02
2073	6.042E+01	1.686E+04	1.133E+00	6.078E+03	9.110E+06	6.121E+02
2074	5.923E+01	1.652E+04	1.110E+00	5.957E+03	8.930E+06	6.000E+02
2075	5.805E+01	1.620E+04	1.088E+00	5.839E+03	8.753E+06	5.881E+02
2076	5.690E+01	1.588E+04	1.067E+00	5.724E+03	8.579E+06	5.764E+02

INPUT REVIEW

Landfill Name or Identifier: YCCL ATC C-07-164

LANDFILL CHARACTERISTICS

Landfill Open Year	**2016**	
Landfill Closure Year (with 80-year limit)	**2034**	
Actual Closure Year (without limit)	***2034***	
Have Model Calculate Closure Year?	**Yes**	
Waste Design Capacity	**10,646,881**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.200**	*$year^{-1}$*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**925**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**NMOC**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	
Gas / Pollutant #4:	

Description/Comments:
Revised calculation to determine the uncontrolled NMOC and CH4 emissions from the future bioreactor landfill waste management cells (24 million cubic feet/10,450,875 Mg). The CH4 generation rate (k) has been revised to 0.2 in order to reflect the accelerated methane generation rate of the bioreactors.

WASTE ACCEPTANCE RATES

Year	(Mg/year)	(short tons/year)
2016	154,956	170,452
2017	586,229	644,852
2018	586,229	644,852
2019	586,229	644,852
2020	586,229	644,852
2021	586,229	644,852
2022	586,229	644,852
2023	586,229	644,852
2024	586,229	644,852
2025	586,229	644,852
2026	586,229	644,852
2027	586,229	644,852
2028	586,229	644,852
2029	586,229	644,852
2030	586,229	644,852
2031	586,229	644,852
2032	586,229	644,852
2033	586,229	644,852
2034	526,035	578,639
2035	0	0
2036	0	0
2037	0	0
2038	0	0
2039	0	0
2040	0	0
2041	0	0
2042	0	0
2043	0	0
2044	0	0
2045	0	0
2046	0	0
2047	0	0
2048	0	0
2049	0	0
2050	0	0
2051	0	0
2052	0	0
2053	0	0
2054	0	0
2055	0	0
2056	0	0
2057	0	0
2058	0	0

Results

Year	NMOC			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
2016	0	0	0	0	0	0
2017	3.199E+01	8.924E+03	5.996E-01	3.218E+03	4.823E+06	3.241E+02
2018	1.472E+02	4.107E+04	2.759E+00	1.481E+04	2.220E+07	1.491E+03
2019	2.416E+02	6.739E+04	4.528E+00	2.430E+04	3.642E+07	2.447E+03
2020	3.188E+02	8.894E+04	5.976E+00	3.207E+04	4.806E+07	3.229E+03
2021	3.820E+02	1.066E+05	7.161E+00	3.843E+04	5.760E+07	3.870E+03
2022	4.338E+02	1.210E+05	8.131E+00	4.363E+04	6.540E+07	4.394E+03
2023	4.762E+02	1.328E+05	8.926E+00	4.790E+04	7.179E+07	4.824E+03
2024	5.109E+02	1.425E+05	9.576E+00	5.139E+04	7.703E+07	5.175E+03
2025	5.393E+02	1.505E+05	1.011E+01	5.425E+04	8.131E+07	5.463E+03
2026	5.626E+02	1.569E+05	1.055E+01	5.659E+04	8.482E+07	5.699E+03
2027	5.816E+02	1.623E+05	1.090E+01	5.850E+04	8.769E+07	5.892E+03
2028	5.972E+02	1.666E+05	1.119E+01	6.007E+04	9.004E+07	6.050E+03
2029	6.100E+02	1.702E+05	1.143E+01	6.135E+04	9.196E+07	6.179E+03
2030	6.204E+02	1.731E+05	1.163E+01	6.241E+04	9.354E+07	6.285E+03
2031	6.290E+02	1.755E+05	1.179E+01	6.327E+04	9.483E+07	6.372E+03
2032	6.360E+02	1.774E+05	1.192E+01	6.397E+04	9.589E+07	6.443E+03
2033	6.417E+02	1.790E+05	1.203E+01	6.455E+04	9.675E+07	6.501E+03
2034	6.464E+02	1.803E+05	1.212E+01	6.502E+04	9.746E+07	6.548E+03
2035	6.378E+02	1.779E+05	1.196E+01	6.416E+04	9.617E+07	6.461E+03
2036	5.222E+02	1.457E+05	9.789E+00	5.253E+04	7.873E+07	5.290E+03
2037	4.276E+02	1.193E+05	8.014E+00	4.301E+04	6.446E+07	4.331E+03
2038	3.501E+02	9.766E+04	6.562E+00	3.521E+04	5.278E+07	3.546E+03
2039	2.866E+02	7.996E+04	5.372E+00	2.883E+04	4.321E+07	2.903E+03
2040	2.346E+02	6.546E+04	4.398E+00	2.360E+04	3.538E+07	2.377E+03
2041	1.921E+02	5.360E+04	3.601E+00	1.932E+04	2.896E+07	1.946E+03
2042	1.573E+02	4.388E+04	2.948E+00	1.582E+04	2.371E+07	1.593E+03
2043	1.288E+02	3.593E+04	2.414E+00	1.295E+04	1.942E+07	1.305E+03
2044	1.054E+02	2.941E+04	1.976E+00	1.061E+04	1.590E+07	1.068E+03
2045	8.632E+01	2.408E+04	1.618E+00	8.683E+03	1.301E+07	8.745E+02
2046	7.068E+01	1.972E+04	1.325E+00	7.109E+03	1.066E+07	7.159E+02
2047	5.786E+01	1.614E+04	1.085E+00	5.820E+03	8.724E+06	5.862E+02
2048	4.738E+01	1.322E+04	8.880E-01	4.765E+03	7.143E+06	4.799E+02
2049	3.879E+01	1.082E+04	7.271E-01	3.901E+03	5.848E+06	3.929E+02
2050	3.176E+01	8.859E+03	5.953E-01	3.194E+03	4.788E+06	3.217E+02
2051	2.600E+01	7.254E+03	4.874E-01	2.615E+03	3.920E+06	2.634E+02
2052	2.129E+01	5.939E+03	3.990E-01	2.141E+03	3.209E+06	2.156E+02
2053	1.743E+01	4.862E+03	3.267E-01	1.753E+03	2.628E+06	1.766E+02
2054	1.427E+01	3.981E+03	2.675E-01	1.435E+03	2.151E+06	1.445E+02
2055	1.168E+01	3.259E+03	2.190E-01	1.175E+03	1.761E+06	1.183E+02
2056	9.565E+00	2.668E+03	1.793E-01	9.621E+02	1.442E+06	9.689E+01
2057	7.831E+00	2.185E+03	1.468E-01	7.877E+02	1.181E+06	7.933E+01
2058	6.412E+00	1.789E+03	1.202E-01	6.449E+02	9.667E+05	6.495E+01
2059	5.249E+00	1.464E+03	9.840E-02	5.280E+02	7.914E+05	5.318E+01
2060	4.298E+00	1.199E+03	8.056E-02	4.323E+02	6.480E+05	4.354E+01
2061	3.519E+00	9.817E+02	6.596E-02	3.539E+02	5.305E+05	3.564E+01
2062	2.881E+00	8.037E+02	5.400E-02	2.898E+02	4.343E+05	2.918E+01
2063	2.359E+00	6.580E+02	4.421E-02	2.372E+02	3.556E+05	2.389E+01
2064	1.931E+00	5.387E+02	3.620E-02	1.942E+02	2.911E+05	1.956E+01
2065	1.581E+00	4.411E+02	2.964E-02	1.590E+02	2.384E+05	1.602E+01

Results (Continued)

Year	NMOC			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
2066	1.294E+00	3.611E+02	2.426E-02	1.302E+02	1.952E+05	1.311E+01
2067	1.060E+00	2.957E+02	1.987E-02	1.066E+02	1.598E+05	1.074E+01
2068	8.677E-01	2.421E+02	1.626E-02	8.728E+01	1.308E+05	8.790E+00
2069	7.104E-01	1.982E+02	1.332E-02	7.146E+01	1.071E+05	7.197E+00
2070	5.816E-01	1.623E+02	1.090E-02	5.850E+01	8.769E+04	5.892E+00
2071	4.762E-01	1.329E+02	8.926E-03	4.790E+01	7.180E+04	4.824E+00
2072	3.899E-01	1.088E+02	7.308E-03	3.922E+01	5.878E+04	3.950E+00
2073	3.192E-01	8.905E+01	5.984E-03	3.211E+01	4.813E+04	3.234E+00
2074	2.613E-01	7.291E+01	4.899E-03	2.629E+01	3.940E+04	2.647E+00
2075	2.140E-01	5.969E+01	4.011E-03	2.152E+01	3.226E+04	2.168E+00
2076	1.752E-01	4.887E+01	3.284E-03	1.762E+01	2.641E+04	1.775E+00
2077	1.434E-01	4.001E+01	2.689E-03	1.443E+01	2.162E+04	1.453E+00
2078	1.174E-01	3.276E+01	2.201E-03	1.181E+01	1.770E+04	1.190E+00
2079	9.614E-02	2.682E+01	1.802E-03	9.671E+00	1.450E+04	9.740E-01
2080	7.872E-02	2.196E+01	1.476E-03	7.918E+00	1.187E+04	7.974E-01
2081	6.445E-02	1.798E+01	1.208E-03	6.482E+00	9.717E+03	6.529E-01
2082	5.277E-02	1.472E+01	9.891E-04	5.307E+00	7.955E+03	5.345E-01
2083	4.320E-02	1.205E+01	8.098E-04	4.345E+00	6.513E+03	4.376E-01
2084	3.537E-02	9.867E+00	6.630E-04	3.558E+00	5.333E+03	3.583E-01
2085	2.896E-02	8.079E+00	5.428E-04	2.913E+00	4.366E+03	2.933E-01
2086	2.371E-02	6.614E+00	4.444E-04	2.385E+00	3.575E+03	2.402E-01
2087	1.941E-02	5.415E+00	3.639E-04	1.952E+00	2.927E+03	1.966E-01
2088	1.589E-02	4.434E+00	2.979E-04	1.599E+00	2.396E+03	1.610E-01
2089	1.301E-02	3.630E+00	2.439E-04	1.309E+00	1.962E+03	1.318E-01
2090	1.065E-02	2.972E+00	1.997E-04	1.072E+00	1.606E+03	1.079E-01
2091	8.722E-03	2.433E+00	1.635E-04	8.773E-01	1.315E+03	8.835E-02
2092	7.141E-03	1.992E+00	1.339E-04	7.183E-01	1.077E+03	7.234E-02
2093	5.847E-03	1.631E+00	1.096E-04	5.881E-01	8.815E+02	5.923E-02
2094	4.787E-03	1.335E+00	8.973E-05	4.815E-01	7.217E+02	4.849E-02
2095	3.919E-03	1.093E+00	7.346E-05	3.942E-01	5.909E+02	3.970E-02
2096	3.209E-03	8.952E-01	6.015E-05	3.227E-01	4.838E+02	3.250E-02
2097	2.627E-03	7.329E-01	4.924E-05	2.642E-01	3.961E+02	2.661E-02
2098	2.151E-03	6.000E-01	4.032E-05	2.163E-01	3.243E+02	2.179E-02
2099	1.761E-03	4.913E-01	3.301E-05	1.771E-01	2.655E+02	1.784E-02
2100	1.442E-03	4.022E-01	2.703E-05	1.450E-01	2.174E+02	1.460E-02
2101	1.180E-03	3.293E-01	2.213E-05	1.187E-01	1.780E+02	1.196E-02
2102	9.664E-04	2.696E-01	1.812E-05	9.721E-02	1.457E+02	9.790E-03
2103	7.912E-04	2.207E-01	1.483E-05	7.959E-02	1.193E+02	8.015E-03
2104	6.478E-04	1.807E-01	1.214E-05	6.516E-02	9.767E+01	6.562E-03
2105	5.304E-04	1.480E-01	9.942E-06	5.335E-02	7.997E+01	5.373E-03
2106	4.342E-04	1.211E-01	8.140E-06	4.368E-02	6.547E+01	4.399E-03
2107	3.555E-04	9.919E-02	6.664E-06	3.576E-02	5.360E+01	3.602E-03
2108	2.911E-04	8.121E-02	5.456E-06	2.928E-02	4.389E+01	2.949E-03
2109	2.383E-04	6.649E-02	4.467E-06	2.397E-02	3.593E+01	2.414E-03
2110	1.951E-04	5.443E-02	3.657E-06	1.963E-02	2.942E+01	1.977E-03
2111	1.597E-04	4.457E-02	2.994E-06	1.607E-02	2.409E+01	1.618E-03
2112	1.308E-04	3.649E-02	2.452E-06	1.316E-02	1.972E+01	1.325E-03
2113	1.071E-04	2.987E-02	2.007E-06	1.077E-02	1.614E+01	1.085E-03
2114	8.767E-05	2.446E-02	1.643E-06	8.818E-03	1.322E+01	8.881E-04
2115	7.178E-05	2.003E-02	1.345E-06	7.220E-03	1.082E+01	7.271E-04
2116	5.877E-05	1.640E-02	1.102E-06	5.911E-03	8.860E+00	5.953E-04

Summary Table: LandGEM Results for Both Conventional and Bioreactor WMU's.

Year	CONVENTIONAL CELLS				BIOREACTOR CELLS				FACILITY WASTE TOTALS			
	Waste Accepted (Mg/year)	Waste-In-Place (Mg)	NMOC (Mg/year)	CH_4 (m^3/year)	Waste Accepted (Mg/year)	Waste-In-Place (Mg)	NMOC (Mg/year)	CH_4 (m^3/year)	Waste Accepted (Mg/year)	Waste-In-Place (Mg)	Total NMOC (Mg/year)	CH_4 (m^3/year)
1976	66,387	0	0.00	0	0	0	0.00	0	66,387	0	0.00	0
1977	111,892	66,387	1.48	223,697	0	0	0.00	0	111,892	66,387	1.48	223,697
1978	130,185	178,279	3.96	596,298	0	0	0.00	0	130,185	178,279	3.96	596,298
1979	155,400	308,464	6.79	1,023,161	0	0	0.00	0	155,400	308,464	6.79	1,023,161
1980	186,771	463,864	10.13	1,526,536	0	0	0.00	0	186,771	463,864	10.13	1,526,536
1981	232,381	650,635	14.10	2,125,651	0	0	0.00	0	232,381	650,635	14.10	2,125,651
1982	238,993	883,016	19.01	2,866,589	0	0	0.00	0	238,993	883,016	19.01	2,866,589
1983	245,259	1,122,009	23.98	3,615,136	0	0	0.00	0	245,259	1,122,009	23.98	3,615,136
1984	207,196	1,367,268	28.98	4,369,975	0	0	0.00	0	207,196	1,367,268	28.98	4,369,975
1985	214,814	1,574,464	33.04	4,981,610	0	0	0.00	0	214,814	1,574,464	33.04	4,981,610
1986	232,871	1,789,278	37.19	5,606,803	0	0	0.00	0	232,871	1,789,278	37.19	5,606,803
1987	262,157	2,022,149	41.66	6,280,461	0	0	0.00	0	262,157	2,022,149	41.66	6,280,461
1988	232,389	2,284,306	46.69	7,039,462	0	0	0.00	0	232,389	2,284,306	46.69	7,039,462
1989	265,136	2,516,695	50.96	7,683,128	0	0	0.00	0	265,136	2,516,695	50.96	7,683,128
1990	213,145	2,781,831	55.88	8,424,392	0	0	0.00	0	213,145	2,781,831	55.88	8,424,392
1991	231,143	2,994,976	59.53	8,975,790	0	0	0.00	0	231,143	2,994,976	59.53	8,975,790
1992	189,361	3,226,119	63.52	9,576,915	0	0	0.00	0	189,361	3,226,119	63.52	9,576,915
1993	146,855	3,415,480	66.50	10,025,349	0	0	0.00	0	146,855	3,415,480	66.50	10,025,349
1994	140,256	3,562,335	68.46	10,321,675	0	0	0.00	0	140,256	3,562,335	68.46	10,321,675
1995	139,072	3,702,591	70.24	10,589,898	0	0	0.00	0	139,072	3,702,591	70.24	10,589,898
1996	136,541	3,841,663	71.96	10,848,820	0	0	0.00	0	136,541	3,841,663	71.96	10,848,820
1997	135,307	3,978,204	73.58	11,094,086	0	0	0.00	0	135,307	3,978,204	73.58	11,094,086
1998	171,547	4,113,511	75.15	11,330,338	0	0	0.00	0	171,547	4,113,511	75.15	11,330,338
1999	177,224	4,285,058	77.50	11,684,026	0	0	0.00	0	177,224	4,285,058	77.50	11,684,026
2000	151,865	4,462,282	79.92	12,049,840	0	0	0.00	0	151,865	4,462,282	79.92	12,049,840
2001	150,845	4,614,147	81.73	12,322,960	0	0	0.00	0	150,845	4,614,147	81.73	12,322,960
2002	148,704	4,764,992	83.49	12,587,235	0	0	0.00	0	148,704	4,764,992	83.49	12,587,235
2003	156,342	4,913,696	85.16	12,839,063	0	0	0.00	0	156,342	4,913,696	85.16	12,839,063
2004	167,514	5,070,038	86.97	13,111,642	0	0	0.00	0	167,514	5,070,038	86.97	13,111,642
2005	178,273	5,237,552	88.99	13,416,468	0	0	0.00	0	178,273	5,237,552	88.99	13,416,468
2006	176,202	5,415,825	91.21	13,751,511	0	0	0.00	0	176,202	5,415,825	91.21	13,751,511
2007	173,199	5,592,027	93.34	14,072,942	0	0	0.00	0	173,199	5,592,027	93.34	14,072,942
2008	586,229	5,765,226	95.36	14,377,889	0	0	0.00	0	586,229	5,765,226	95.36	14,377,889
2009	586,229	6,351,455	106.58	16,068,540	0	0	0.00	0	586,229	6,351,455	106.58	16,068,540
2010	586,229	6,937,684	117.57	17,725,714	0	0	0.00	0	586,229	6,937,684	117.57	17,725,714
2011	586,229	7,523,912	128.34	19,350,074	0	0	0.00	0	586,229	7,523,912	128.34	19,350,074
2012	586,229	8,110,141	138.90	20,942,269	0	0	0.00	0	586,229	8,110,141	138.90	20,942,269
2013	586,229	8,696,370	149.26	22,502,937	0	0	0.00	0	586,229	8,696,370	149.26	22,502,937
2014	586,229	9,282,599	159.40	24,032,701	0	0	0.00	0	586,229	9,282,599	159.40	24,032,701
2015	586,229	9,868,828	169.35	25,532,174	0	0	0.00	0	586,229	9,868,828	169.35	25,532,174
2016	431,273	10,455,056	179.10	27,001,956	154,956	0	0.00	0	154,956	10,455,056	179.10	27,001,956
2017	0	10,886,329	185.19	27,920,495	586,229	154,956	31.99	4,823,003	586,229	11,041,285	217.18	32,743,498
2018	0	10,886,329	181.52	27,367,632	586,229	741,185	147.21	22,195,087	586,229	11,627,514	328.73	49,562,719
2019	0	10,886,329	177.93	26,825,716	586,229	1,327,414	241.55	36,418,146	586,229	12,213,743	419.48	63,243,863
2020	0	10,886,329	174.40	26,294,532	586,229	1,913,643	318.79	48,063,002	586,229	12,799,972	493.19	74,357,534
2021	0	10,886,329	170.95	25,773,865	586,229	2,499,871	382.02	57,597,004	586,229	13,386,200	552.97	83,370,869
2022	0	10,886,329	167.57	25,263,508	586,229	3,086,100	433.80	65,402,784	586,229	13,972,429	601.36	90,666,293
2023	0	10,886,329	164.25	24,763,257	586,229	3,672,329	476.19	71,793,617	586,229	14,558,658	640.43	96,556,874
2024	0	10,886,329	160.99	24,272,912	586,229	4,258,558	510.89	77,025,988	586,229	15,144,887	671.88	101,298,900
2025	0	10,886,329	157.81	23,792,276	586,229	4,844,787	539.30	81,309,891	586,229	15,731,116	697.11	105,102,167
2026	0	10,886,329	154.68	23,321,157	586,229	5,431,015	562.57	84,817,254	586,229	16,317,344	717.25	108,138,412
2027	0	10,886,329	151.62	22,859,368	586,229	6,017,244	581.61	87,688,840	586,229	16,903,573	733.23	110,548,208
2028	0	10,886,329	148.62	22,406,722	586,229	6,603,473	597.21	90,039,896	586,229	17,489,802	745.82	112,446,618
2029	0	10,886,329	145.67	21,963,039	586,229	7,189,702	609.97	91,964,778	586,229	18,076,031	755.65	113,927,817
2030	0	10,886,329	142.79	21,528,142	586,229	7,775,930	620.43	93,540,738	586,229	18,662,259	763.22	115,068,880
2031	0	10,886,329	139.96	21,101,856	586,229	8,362,159	628.99	94,831,025	586,229	19,248,488	768.95	115,932,881
2032	0	10,886,329	137.19	20,684,011	586,229	8,948,388	635.99	95,887,422	586,229	19,834,717	773.18	116,571,433
2033	0	10,886,329	134.47	20,274,440	586,229	9,534,617	641.73	96,752,327	586,229	20,420,946	776.20	117,026,768
2034	0	10,886,329	131.81	19,872,979	526,035	10,120,846	646.43	97,460,452	526,035	21,007,175	778.24	117,333,431
2035	0	10,886,329	129.20	19,479,468	0	10,646,881	637.84	96,166,697	0	21,533,210	767.05	115,646,165
2036	0	10,886,329	126.64	19,093,749	0	10,646,881	522.22	78,734,632	0	21,533,210	648.87	97,828,381
2037	0	10,886,329	124.14	18,715,667	0	10,646,881	427.56	64,462,465	0	21,533,210	551.70	83,178,132
2038	0	10,886,329	121.68	18,345,072	0	10,646,881	350.06	52,777,402	0	21,533,210	471.73	71,122,474
2039	0	10,886,329	119.27	17,981,815	0	10,646,881	286.60	43,210,482	0	21,533,210	405.87	61,192,298
2040	0	10,886,329	116.91	17,625,752	0	10,646,881	234.65	35,377,751	0	21,533,210	351.56	53,003,502
2041	0	10,886,329	114.59	17,276,738	0	10,646,881	192.12	28,964,852	0	21,533,210	306.71	46,241,591
2042	0	10,886,329	112.32	16,934,636	0	10,646,881	157.29	23,714,415	0	21,533,210	269.61	40,649,051
2043	0	10,886,329	110.10	16,599,308	0	10,646,881	128.78	19,415,721	0	21,533,210	238.88	36,015,029
2044	0	10,886,329	107.92	16,270,619	0	10,646,881	105.44	15,896,248	0	21,533,210	213.35	32,166,867
2045	0	10,886,329	105.78	15,948,440	0	10,646,881	86.32	13,014,747	0	21,533,210	192.10	28,963,187

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2046	0	10,886,329	103.69	15,632,639	0	10,646,881	70.68	10,655,574	0	21,533,210	174.36	26,288,213
2047	0	10,886,329	101.63	15,323,092	0	10,646,881	57.86	8,724,046	0	21,533,210	159.50	24,047,138
2048	0	10,886,329	99.62	15,019,675	0	10,646,881	47.38	7,142,645	0	21,533,210	147.00	22,162,319
2049	0	10,886,329	97.65	14,722,265	0	10,646,881	38.79	5,847,903	0	21,533,210	136.44	20,570,168
2050	0	10,886,329	95.71	14,430,745	0	10,646,881	31.76	4,787,858	0	21,533,210	127.47	19,218,603

	NMOC (Mg/yr)	CH_4 (m^3/yr)
Maximum Uncontrolled Emission =	778.24	117,333,431

Conversion Factor =	1.1023	tons/Mg
Control Efficiency =	94.1	%

	NMOC	CH_4
1st Quarter Emission (lb/quarter) =	25,165	1,897,077
2nd Quarter Emission (lb/quarter) =	25,445	1,918,156
3rd Quarter Emission (lb/quarter) =	25,725	1,939,235
4th Quarter Emission (lb/quarter) =	25,725	1,939,235
Maximum Yearly Emission =	51.03	7,693,702

Summary Table: Five Year Interval Capacity, NMOC and CH4 Generation Rates

Year	Waste-In-Place (Mg)	Total NMOC (Mg/year)	Total CH4 (m^3/year)
2008	5,765,226	95.36	14,377,889
2010	6,937,684	117.57	17,725,714
2015	9,868,828	169.35	25,532,174
2020	10,886,329	493.19	74,357,534
2025	10,886,329	697.11	105,102,167
2030	10,886,329	763.22	115,068,880
2035	10,886,329	767.05	115,646,165
2040	10,886,329	351.56	53,003,502
2045	10,886,329	192.10	28,963,187
2050	10,886,329	127.47	19,218,603

REVISED Summary Table: LandGEM HAP Emission Calculations for Use with 40 CFR Part 63, Subpart A-NESHAP

Acceptance Year:	2034			
Landfill Capture and Control Efficiency:	94.1 % of emissions produced (excluding Mercury compounds)			
Conventional Cell Methane Generation:	19.873 million m^3 per year	**Methane Generation Rate Constant, k =**	0.02 yr^{-1} for Conventional Cells	
Bioreactor Cell Methane Generation:	97.460 million m^3 per year	**Methane Generation Rate Constant, k =**	0.20 yr^{-1} for Bioreactor Cells	
Total Landfill Methane Generation:	117.333 million m^3 per year	**Methane Generation Potential, Lo =**	170 m^3/Mg	

Pollutant Prioritization	CAS Number	Included Compound (Yes / No)	LandGEM Output for Calendar Year 2034 Conventional (Mg/yr)	Bioreactor (Mg/yr)	Total Uncontrolled HAPs (Mg/yr)	(lb/yr)	Fugitive HAP Emissions (lb/hr)	[HAP$_i$] (lb/year)	(ton/year)	RMPRAC Screening Level (lb/year)	Less than RMPRAC Screening (Yes / No)
1,1,1-Trichloroethane (methyl chloroform) =	71556	Yes	0.1059	0.5192	0.6250	1,378	9.28E-03	81.3	0.04	61,800	Yes
1,1,2,2-Tetrachloroethane =	79345	No	0.3052	1.4969	1.8021	3,973				-	-
1,1-Dichloroethane (ethylidene dichloride) =	75343	Yes	0.3927	1.9257	2.3184	5,111	3.44E-02	301.6	0.15	-	-
1,1-Dichloroethene (vinylidene chloride) =	75354	Yes	0.0321	0.1572	0.1892	417	2.81E-03	24.61	0.01	6,180	Yes
1,2-Dichloroethane (ethylene dichloride) =	107062	Yes	0.0671	0.3289	0.3960	873	5.88E-03	51.51	0.03	9.70	No
1,2-Dichloropropane (propylene dichloride) =	78875	Yes	0.0336	0.1649	0.1985	438	2.95E-03	25.82	0.01	-	-
2-Propanol (isopropyl alcohol) =	67630	Yes	4.9685	24.3665	29.3350	64,672	4.36E-01	3,816	1.91	440,000	Yes
Acetone =	-	No	0.6721	3.2961	3.9682	8,748				-	-
Acrylonitrile =	107131	Yes	0.5526	2.7101	3.2627	7,193	4.84E-02	424.4	0.21	0.67	No
Benzene (No Codisposal) =	71432	No	0.2453	1.2032	1.4485	3,193				-	-
Benzene (Codisposal) =	71432	Yes	1.4204	6.9659	8.3863	18,488	1.25E-01	1,090.8	0.55	6.70	No
Bromodichloromethane =	75274	No	0.8396	4.1175	4.9571	10,928				-	-
Butane =	-	No	0.4804	2.3560	2.8364	6,253				-	-
Carbon disulfide =	75150	Yes	0.0730	0.3580	0.4310	950	6.40E-03	56.1	0.03	14,300	Yes
Carbon monoxide =	42101	No	6.4826	31.7920	38.2746	84,380				-	-
Carbon tetrachloride =	56235	Yes	0.0010	0.0050	0.0060	13.2	8.92E-05	0.78	0.00	4.60	Yes
Carbonyl sulfide =	463581	Yes	0.0487	0.2386	0.2873	633	4.27E-03	37.37	0.02	-	-
Chlorobenzene =	108907	Yes	0.0465	0.2281	0.2747	606	4.08E-03	35.73	0.02	13,500	Yes
Chlorodifluoromethane =	75456	No	0.1858	0.9114	1.0972	2,419				-	-
Chloroethane (ethyl chloride) =	75003	Yes	0.1387	0.6800	0.8187	1,805	1.22E-02	106.49	0.05	-	-
Chloroform =	67663	Yes	0.0059	0.0290	0.0350	77.1	5.19E-04	4.55	0.00	36.0	Yes
Chloromethane (methyl chloride) =	74873	Yes	0.1002	0.4912	0.5914	1,304	8.78E-03	76.92	0.04	-	-
Dichlorobenzene =	25321226	Yes	0.0510	0.2503	0.3013	664	4.47E-03	39.19	0.02	68.0	Yes
Dichlorodifluoromethane =	-	No	3.1981	15.6841	18.8822	41,628				-	-
Dichlorofluoromethane =	75434	No	0.4424	2.1694	2.6118	5,758				-	-
Dichloromethane (methylene chloride) =	75092	Yes	1.9659	9.6409	11.6067	25,588	1.72E-01	1,510	0.75	-	-
Dimethyl sulfide (methyl sulfide) =	-	No	0.8011	3.9289	4.7301	10,428				-	-
Ethane =	-	No	44.2420	216.9701	261.2121	575,868				-	-
Ethanol =	-	No	2.0568	10.0868	12.1436	26,772				-	-
Ethyl mercaptan (ethanethiol) =	-	No	0.2362	1.1585	1.3948	3,075				-	-
Ethyl benzene =	100414	Yes	0.8073	3.9591	4.7664	10,508	7.08E-02	620.0	0.31	193,000	Yes
Ethylene dibromide (Dibromoethane) =	106934	Yes	0.0003	0.0015	0.0018	4.04	2.72E-05	0.2385	0.00	2.70	Yes
Fluorotrichloromethane =	-	No	0.1726	0.8465	1.0191	2,247				-	-
Hexane =	110543	Yes	0.9403	4.6113	5.5516	12,239	8.24E-02	722.1	0.36	83,000	Yes
Hydrogen =	-	No	2.0282	9.9467	11.9749	26,400				-	-
Mercury (total) =	7439976	Yes	0.00010	0.0005	0.0006	1.25	1.43E-04	1.252	0.00	57.9	Yes
Methyl ethyl ketone =	78933	Yes	0.8464	4.1508	4.9972	11,017	7.42E-02	650.0	0.32	149,000	Yes
Methyl isobutyl ketone =	108101	Yes	0.3146	1.5429	1.8575	4,095	2.76E-02	241.6	0.12	-	-
Methyl mercaptan =	-	No	0.1988	0.9751	1.1739	2,588				-	-
Pentane =	-	No	0.3936	1.9303	2.3239	5,123				-	-
Perchloroethylene (tetrachloroethylene) =	127184	Yes	1.0143	4.9744	5.9887	13,203	8.89E-02	779.0	0.39	33.0	No
Propane =	-	No	0.8018	3.9320	4.7337	10,436				-	-
t-1,2-dichloroethene =	-	No	0.4487	2.2006	2.6493	5,841				-	-
Toluene (No Co-disposal) =	108883	No	5.9399	29.1301	35.0700	77,315				-	-
Toluene (Co-disposal) =	108883	Yes	25.8917	126.9774	152.8691	337,015	2.27E+00	19,883.9	9.94	38,600	Yes
Trichloroethylene (trichloroethene) =	79016	Yes	0.6082	2.9828	3.5911	7,917	5.33E-02	467.1	0.23	97.0	No
Vinyl chloride =	75014	Yes	0.7542	3.6990	4.4532	9,818	6.61E-02	579.2	0.29	2.50	No
Xylenes =	1330207	Yes	2.1060	10.3281	12.4340	27,412	1.85E-01	1,617	0.81	57,900	Yes
							Maximum Yearly Single Fugitive HAP Emission Rate in 2034 (tons/year) =		**9.94**		
							Maximum Yearly Fugitive HAPS Emission Rate in 2034 (tons/year) =		**16.62**		

SUPPLEMENTAL INFORMATION

1. Conversion of Landfill Annual Throughput from tons to Megagrams:

Taken from 2007 JTD, Section 2.2, Table 4 - Historical Summary of Annual Waste Throughputs at the YCCL (Page 5)

Fiscal Year	Annual Throughput [tons]	Annual Disposal * [tons]	Annual Disposal * [Mg]	Average Daily Throughput [Mg]
1975-76	73,180	73,180	66,388	204
1976-77	123,341	123,341	111,894	343
1977-78	143,505	143,505	130,187	399
1978-79	171,300	171,300	155,402	475
1979-80	205,881	205,881	186,774	572
1980-81	256,158	256,158	232,385	712
1981-82	263,446	263,446	238,997	732
1982-83	270,343	270,343	245,254	751
1983-84	228,396	228,396	207,199	634
1984-85	236,793	236,793	214,817	658
1985-86	256,698	256,698	232,875	713
1986-87	288,980	288,980	262,161	803
1987-88	256,166	256,166	232,392	712
1988-89	292,264	292,264	265,140	812
1989-90	234,953	234,953	213,148	653
1990-91	266,199	254,793	231,147	741
1991-92	230,952	208,736	189,364	643
1992-93	213,856	161,881	146,857	596
1993-94	229,215	154,607	140,259	638
1994-95	258,520	153,301	139,074	720
1995-96	247,428	150,512	136,544	689
1996-97	253,812	149,151	135,309	707
1997-98	287,529	189,099	171,549	801
1998-99	279,034	195,357	177,227	777
1999-00	233,008	167,403	151,867	649
2000-01	261,641	166,279	150,847	729
2001-02	253,248	163,919	148,706	705
2002-03	261,950	172,338	156,344	730
2003-04	292,337	184,654	167,517	814
2004-05	269,275	196,513	178,275	730
2005-06	245,408	194,231	176,205	684
2006-07	225,644	225,644	204,703	684

* 100% of Waste Received (Throughput) assumed to have been landfilled for period of 1975-1990.
** Conversion Formula: X Mg = tons * [1 Mg/1.1023 ton]

2. Waste Managemente Unit Design and Remaing Capacities (Jeff Keiffer email dated 01/30/2008):

Waste Density =	1,200	lb/yard^3
Waste to Soil Ratio =	4:1	
1 megagram (Mg) =	1.1023	tons
2008 Waste In-Place	5,765,226	Mg (see LandGEM Summary 940-170)

Waste Management Unit	Status	Design Capacity [yards^3]$_{airspace}$	Remaining Capacity [yards^3]$_{airspace}$	Design Capacity [tons]$_{waste}$	Remaining Capacity [tons]$_{waste}$	Design Capacity [Mg]$_{waste}$	Percent of Current Capacity [%]	Remaining Capacity [Mg]$_{waste}$
1	Active Unit	1,713,666	593,908	822,560	285,076	746,221	11.6%	258,619
2	Active Unit	3,275,344	931,080	1,572,165	446,918	1,426,259	22.2%	405,442
3	Active Unit	1,552,967	48,063	745,424	23,070	676,244	10.5%	20,929
4	Active Unit	633,247	206,193	303,958	98,973	275,749	4.3%	89,787
5	Active Unit	2,308,155	500,138	1,107,915	240,066	1,005,094	15.7%	217,787
6A	Active Unit	1,232,256	87,577	591,483	42,037	536,590	8.4%	38,136
6B	Active Unit	1,432,799	261,684	687,744	125,608	623,917	9.7%	113,951
6C	Active Unit	1,425,673	424,387	684,323	203,706	620,814	9.7%	184,801
6D1	Active Unit	539,555	82,276	258,987	39,493	234,951	3.7%	35,828
6D2	Active Unit	611,035	131,136	293,297	62,945	266,077	4.1%	57,104

Current Design Capacity = 14,724,698 cubic yards Current Design Capacity = 6,411,916 Mg

Waste Management Unit	Status	Design Capacity [yards^3]$_{airspace}$	Remaining Capacity [yards^3]$_{airspace}$	Design Capacity [tons]$_{waste}$	Remaining Capacity [tons]$_{waste}$	Design Capacity [Mg]$_{waste}$	Remaining Capacity [Mg]$_{waste}$
E1	Not Yet Active	635,990	635,990	305,275	305,275	276,944	276,944
E2	Not Yet Active	1,059,482	1,059,482	508,551	508,551	461,355	461,355
F1	Not Yet Active	923,420	923,420	443,242	443,242	402,106	402,106
F2	Not Yet Active	1,004,683	1,004,683	482,248	482,248	437,492	437,492
G1	Not Yet Active	807,640	807,640	387,667	387,667	351,689	351,689
G2	Not Yet Active	1,740,792	1,740,792	835,580	835,580	758,033	758,033
H	Not Yet Active	3,547,105	3,547,105	1,702,610	1,702,610	1,544,598	1,544,598
I	Not Yet Active	2,674,245	2,674,245	1,283,638	1,283,638	1,164,508	1,164,508
J	Not Yet Active	3,685,808	3,685,808	1,769,188	1,769,188	1,604,997	1,604,997
K	Not Yet Active	2,578,670	2,578,670	1,237,762	1,237,762	1,122,890	1,122,890
L	Not Yet Active	3,547,701	3,547,701	1,702,896	1,702,896	1,544,858	1,544,858
M	Not Yet Active	2,636,344	2,636,344	1,265,445	1,265,445	1,148,004	1,148,004
N	Not Yet Active	3,629,157	3,629,157	1,741,995	1,741,995	1,580,328	1,580,328
O	Not Yet Active	2,599,338	2,599,338	1,247,682	1,247,682	1,131,890	1,131,890
P	Not Yet Active	3,655,812	3,655,812	1,754,790	1,754,790	1,591,935	1,591,935

Proposed Add. Design Capacity = 34,726,187 cubic yards Proposed Add. Design Capacity = 15,121,627 Mg

Final Total Design Capacity = 49,450,885 cubic yards (air-space) Final Total Design Capacity = 21,533,543 Mg

3. 2007 JTD, Section 4.3, Table 8 - Site Development and Waste Placement Schedule for the YCCL (Page 24)

Waste Management Unit (WMU)	Year Constructed (yr)	Estimated Closure Date (yr)	Mean Waste Age at Closure (yr)	Design Refuse Plus Cover Volume (yd^3)	Total Projected Waste Inplace (yd^3)	Percent of Landfill Closed (%)	Area Covered (acres)	Period used for Landfilling
3	1981	2007	13	1,552,967	1,552,967	3.17%	20.72	1981-1986, 2003-2006
1	1975	2012	18.5	1,713,666	3,266,633	6.66%	23.19	1975-1978, 1988, 2005-2011
2	1977	2012	17.5	3,275,344	6,541,977	13.34%	39.99	1977-1981, 1986-1987, 2005-2011
4	1983	2015	16	633,247	7,175,224	14.63%	8.73	1981-1986, 2011-2013
5	1988	2015	13.5	2,308,155	9,483,379	19.34%	30.87	1988-1991, 2011-2013
6A	1991	2017	13	1,232,256	10,715,635	21.85%	20.19	1991-1994, 2013
6B	1993	2017	12	1,432,799	12,148,434	24.77%	19.98	1993-1996, 2013-2014
6C	1996	2028	16	1,425,673	13,574,107	27.68%	19.3	1996-1999, 2014-2015
6D1	1999	2028	14.5	539,555	14,113,662	28.78%	11.98	1999-2002, 2015-2027
6D2	2002	2028	13	611,035	14,724,697	30.03%	12.69	2002-2014, 2016-2027
6E1	2013	2058	22.5	652,375	15,377,072	31.36%	11.3	2016-2037
6E2	2015	2058	21.5	1,093,791	16,470,863	33.59%	11.3	2017-2039
6F1	2017	2058	20.5	937,853	17,408,716	35.50%	11.2	2019-2040
6F2	2018	2058	20	1,004,660	18,413,376	37.55%	11.3	2021-2042
6G1	2020	2070	25	778,869	19,192,245	39.14%	10.8	2022-2043
6G2	2022	2070	24	1,718,119	20,910,364	42.64%	10.8	2024-2048
6H	2029	2070	20.5	3,503,249	24,413,613	49.79%	22	2030-2057
7I	2035	2079	22	2,620,715	27,034,328	55.13%	22.4	2037-2060
7J	2038	2079	20.5	3,641,952	30,676,280	62.56%	21.9	2040-2069
7K	2048	2081	16.5	2,527,177	33,203,457	67.71%	22.3	2049-2072
7L	2050	2081	15.5	3,490,066	36,693,523	74.83%	21.9	2052-2078
7M	2058	2081	11.5	2,585,082	39,278,605	80.10%	22.2	2060-2075
7N	2063	2081	9	3,571,258	42,849,863	87.39%	22	2062-2081
7O	2067	2081	7	2,575,048	45,424,911	92.64%	22.1	2069-2079
7P	2071	2081	5	3,610,336	49,035,247	100.00%	22	2072-2080
						Total:	473.14	

4. HARP Dispersion Area Source Calculations:

Conversion Data:

1 Acre = 43,560 $feet^2$

1 Length = 2 Width (assumed by District)

Units

Formulas:

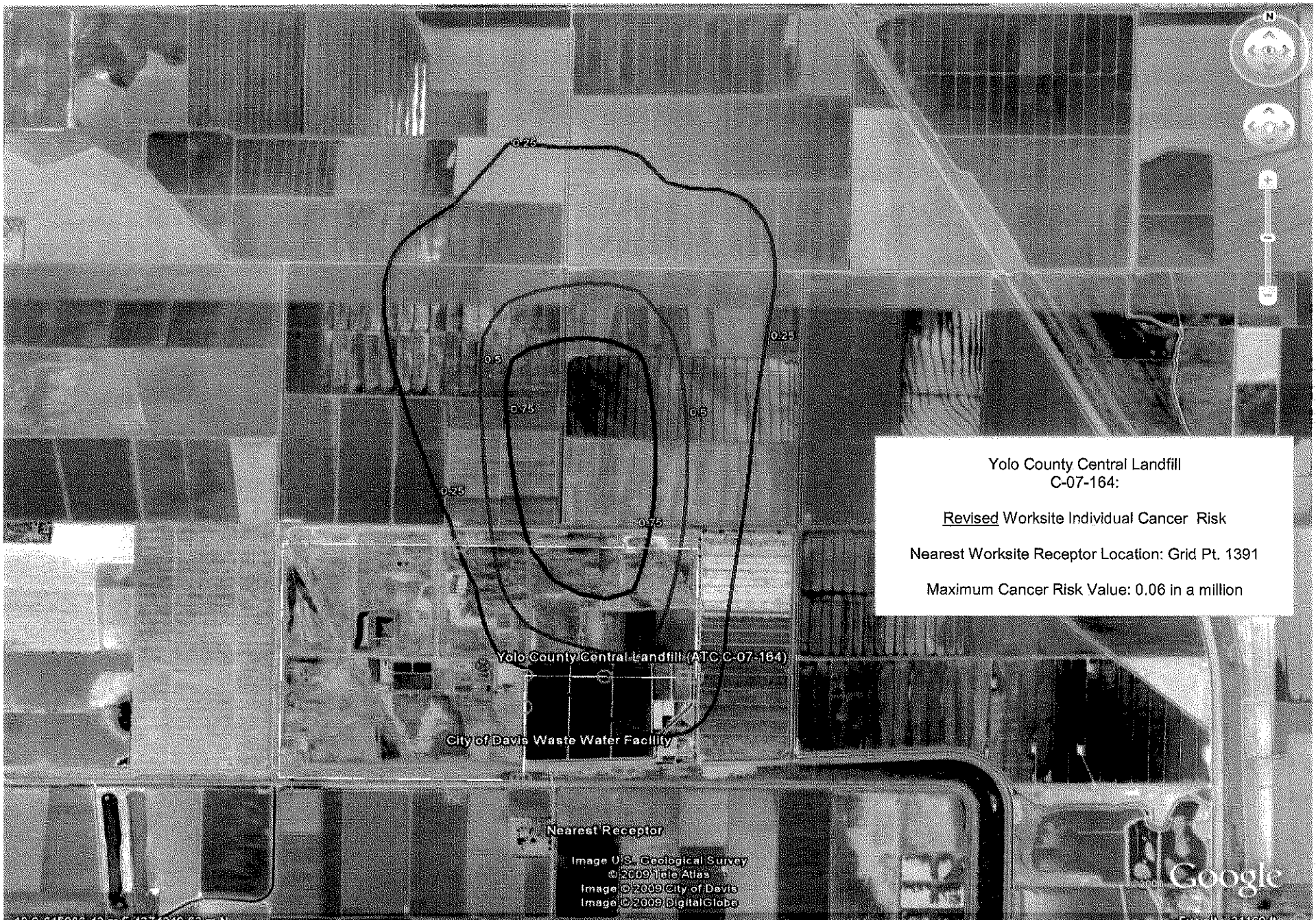
Length = 2 * Width

Area = Length x Width
= (2 * Width) * Width
= 2 * $(Width)^2$

Width = v(Area/2)

Landfill Unit	Acreage [acre]	Square Feet [ft^2]	Width [ft]	Length [ft]	Height [ft]
Units 1-6D	123.5	5,379,660	1,640	3,280	81.4
Units 6E-7P	349.5	15,224,220	2,759	5,518	141.4
Total Waste	473.0	20,603,880	3,210	6,418	-
				Average Height =	111.4

Revised Yolo County Central Landfill
C-07-164:
Revised Residential Individual Cancer Risk
Nearest Residential Receptor: Grid Pt. 1392
Maximum Cancer Risk Value: 0.38 in a million
Yolo County Central Landfill (ATC C-07-164)
City of Davis Waste Water Facility
Nearest Receptor
© 2009 Tele Atlas
Image © 2009 DigitalGlobe
Image U.S. Geological Survey
Image © 2009 City of Davis
Google
10 S 615979.61 m E 4274043.70 m N
Eye alt 21152 ft



Yolo County Central Landfill
C-07-164:

Revised Worksite Individual Cancer Risk

Nearest Worksite Receptor Location: Grid Pt. 1391

Maximum Cancer Risk Value: 0.06 in a million

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT
1947 Galileo Court, Suite 103, Davis, CA 95616

New Source Review

Quarterly Potential To Emit Determination

NSR Version 08/13/1998

Evaluation to be used on existing permits to obtain their quarterly PTE.

Engineer: René Toledo

SIC Code # 4953

Facility Name: Yolo County Central Services (YCCL) and Yolo County General Services Department (YCGSD)

Location: 44090 County Road 28H; Woodland, CA

Date of Initial Quarterly PTE Determination: 09/07/2006
Date of Previous Quarterly PTE Determination: 04/03/2007
Date of Current Quarterly PTE Determination: 06/22/2009

CURRENT APPLICATIONS: **ATC's** Revised C-07-164 and C-09-42 **PTO's**

Process Description	Current Permits	VOC Emissions					CO Emissions					NOx Emissions					SOx Emissions					PM10 Emissions				
		QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)
Municipal Solid Waste Landfill	P-15-05 [a]	25,167	25,447	25,726	25,726	51.03	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
	C-07-164	25,166	25,446	25,725	25,725	51.03	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Septage Receiving & Aeration	C-04-92	1	1	1	1	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
PRE-PROJECT SSPE[b] (lbs)		25,167	25,447	25,726	25,726	102,066	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
POST-PROJECT SSPE[b] (lbs)		25,166	25,446	25,725	25,725	102,063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emergency IC Engine (157 BHP)	P-71-06(t) [c]	13	13	13	13	0.01	52	52	52	52	0.03	306	306	306	306	0.15	13	13	13	13	0.01	10	10	10	10	0.00
Emergency IC Engine (325 BHP)	P-25-07	6	6	6	6	0.00	40	40	40	40	0.02	520	520	520	520	0.26	1	1	1	1	0.00	7	7	7	7	0.00
PRE-PROJECT TOTAL PTE[b]		25,186	25,466	25,745	25,745	51.04	92	92	92	92	0.05	826	826	826	826	0.41	14	14	14	14	0.01	17	17	17	17	0.00
POST-PROJECT TOTAL PTE[b]		25,185	25,465	25,745	25,745	51.04	92	92	92	92	0.05	826	826	826	826	0.41	14	14	14	14	0.01	17	17	17	17	0.00

[a] The PTE of P-15-05 has been revised as part of the landfill's current permit modification (see ATC emission evaluation C-07-164).
[b] Per the requirements of Rule 3.20, the facility's pre- and post-project Stationary Source Potential to Emit (SSPE) calculations do not include any emissions from permitted emergency equipment.
[c] The ownership of PTO P-71-06(t) has been transferred to the Yolo County General Services Department (formerly names the Yolo County Central Services Division) since they primarily operate and maintain the engine.

Post-Project Stationary Source Potential to Emit (SSPE)

	Quarter #1 (lbs)	Quarter #2 (lbs)	Quarter #3 (lbs)	Quarter #4 (lbs)	Yearly (lbs)
VOC	25,166	25,446	25,725	25,725	102,063
CO	0	0	0	0	0
NOx	0	0	0	0	0
SOx	0	0	0	0	0
PM10	0	0	0	0	0

MITIGATION THRESHOLDS

	Yearly (lbs/year)
VOC	20,000
CO	-
NOx	20,000
SOx	-
PM10	-

SSPE Comparison to Rule 3.20 Triggers

	Annual
VOC	Above
CO	-
NOx	Below
SOx	-
PM10	-

Post-Project Total Quarterly Potential to Emit (PTE)

	Quarter #1 (lbs)	Quarter #2 (lbs)	Quarter #3 (lbs)	Quarter #4 (lbs)	Yearly (tons)
VOC	25,185	25,465	25,745	25,745	51.04
CO	92	92	92	92	0.05
NOx	826	826	826	826	0.41
SOx	14	14	14	14	0.01
PM10	17	17	17	17	0.00

OFFSET THRESHOLDS

	Quarterly (lbs/qtr)
VOC	7,500
CO	49,500
NOx	7,500
SOx	13,650
PM10	13,650

PTE Comparison to NSR Triggers

	Quarter #1	Quarter #2	Quarter #3	Quarter #4
VOC	Above	Above	Above	Above
CO	Below	Below	Below	Below
NOx	Below	Below	Below	Below
SOx	Below	Below	Below	Below
PM10	Below	Below	Below	Below

COMMENTS: This quarterly PTE evaluation was updated for YCCL's revised ATC C-07-164 and C-0942 located at 44090 County Road 28H in Woodland. Also permitted at this site are the YCGSD (emergency engine), MM Yolo Power LLC (five landfill fired IC engines), and NEO Yolo LLC (landfill gas flare) which are in the same industrial grouping as the landfill (Group 49, Electric, Gas, & Sanitary Services).

Because the MM Yolo Power and NEO Yolo units are not owned or operated by YCCL, the other facility permits are not considered part of this stationary source and are not represented here. Although the Permit Holder of PTO P-71-06(t) is currently YCGSD, the District considers the engine part of this stationary source since the engine is specifically used for communication between the YCCL staff at the site and the Yolo County staff located in Woodland.

Engineer: René Toledo **Date:** 07/06/2009

Reviewed by: Susan K McLaughlin **Date:** 7/6/09

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT
1947 Galileo Court, Suite 103; Davis, CA 95618

New Source Review
Last Five Year Activity

SIC Code #	4953
Date of Initial Determination:	09/07/2006
Date of Previous Determination:	04/03/2007
Date of Current Determination:	06/22/2009

Engineer: René Toledo

Facility Name: Yolo County Central Services (YCCL)
Yolo County General Services Department (YCGSD)

Location: 44090 County Road 28H; Woodland, CA

Process	PTO	Date PTO Issued	ATC	Date ATC Issued	VOC (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)
Municipal Solid Waste Landfill [a]	P-15-05	04/14/2005	C-03-226	01/18/2005	24.73	0.00	0.00	0.00	0.00
Limited-Use IC Engine (71 BHP) [a]	P-53-05	10/27/2005	C-05-185	09/12/2005	0.04	0.21	0.86	0.02	0.09
Emergency IC Engine (157 BHP)	P-71-06	02/07/2007	C-06-116	11/15/2006	0.01	0.03	0.15	0.01	0.00
Emergency IC Engine (325 BHP)	P-25-07	08/16/2007	C-06-169	05/18/2007	0.00	0.02	0.26	0.00	0.00
Municipal Solid Waste Landfill	P-15-05(a)	-	C-07-164	05/15/2009	0.00	0.00	0.00	0.00	0.00
Septage Receiving & Aeration	-	-	C-09-42	PENDING	0.00	0.00	0.00	0.00	0.00
				TOTAL [b]	0.00	0.05	0.41	0.01	0.00

[a.] Existing emission units that are grandfathered into the District's permitting program are not subject to the New Source Review provisions during their initial permitting actions (see file). As such, the five year emission average calculations will not include the PTE increase from the identified emission units.

[b.] All decreases in PTE are treated as zero net change and not included in the Total 5-Year Aggregate summation.

COMMENTS: This quarterly PTE evaluation was updated for revised ATC C-07-164 and C-09-42.

These permits are sorted by the ATC issue date. According to Rule 3.4, Section 221, a major modification is calculated based on all creditable increases and decreases from the source over the period of five consecutive years before the application, including the calendar year of the most recent application. The applicable period ranges from November 2003 through February 2009.

Engineer: René Toledo **Date:** 07/06/2009

Reviewed by: Susan K McLaughlin **Date:** 7/6/09

INPUT REVIEW

Landfill Name or Identifier: YCCL Recalculation of P-15-05 PTE

LANDFILL CHARACTERISTICS

Landfill Open Year	**1976**	
Landfill Closure Year (with 80-year limit)	**2016**	
Actual Closure Year (without limit)	***2016***	
Have Model Calculate Closure Year?	**Yes**	
Waste Design Capacity	**10,886,329**	*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	*$year^{-1}$*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**925**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1: **NMOC**

Gas / Pollutant #2: **Methane**

Gas / Pollutant #3:

Gas / Pollutant #4:

Description/Comments:
Recalculation of PTE for P-15-05 using the LandGEM program, the maximum disposal rate after the 2007 year, and the previously approved air-space capacity of 25 million cubic yards (10,886,329 Mg). This evaluation will not differentiate the portion of waste disposed in the bioreactors.

WASTE ACCEPTANCE RATES

Year	(Mg/year)	(short tons/year)
1976	66,387	73,026
1977	111,892	123,081
1978	130,185	143,204
1979	155,400	170,940
1980	186,771	205,448
1981	232,381	255,619
1982	238,993	262,892
1983	245,259	269,785
1984	207,196	227,916
1985	214,814	236,295
1986	232,871	256,158
1987	262,157	288,373
1988	232,389	255,628
1989	265,136	291,650
1990	213,145	234,460
1991	231,143	254,257
1992	189,361	208,297
1993	146,855	161,541
1994	140,256	154,282
1995	139,072	152,979
1996	136,541	150,195
1997	135,307	148,838
1998	171,547	188,702
1999	177,224	194,946
2000	151,865	167,052
2001	150,845	165,930
2002	148,704	163,574
2003	156,342	171,976
2004	167,514	184,265
2005	178,273	196,100
2006	176,202	193,822
2007	173,199	190,519
2008	586,229	644,852
2009	586,229	644,852
2010	586,229	644,852
2011	586,229	644,852
2012	586,229	644,852
2013	586,229	644,852
2014	586,229	644,852
2015	586,229	644,852
2016	431,273	474,400

Results

Year	NMOC			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1976	0	0	0	0	0	0
1977	1.484E+00	4.139E+02	2.781E-02	1.492E+02	2.237E+05	1.503E+01
1978	3.955E+00	1.103E+03	7.414E-02	3.978E+02	5.963E+05	4.007E+01
1979	6.786E+00	1.893E+03	1.272E-01	6.826E+02	1.023E+06	6.875E+01
1980	1.013E+01	2.825E+03	1.898E-01	1.018E+03	1.527E+06	1.026E+02
1981	1.410E+01	3.933E+03	2.643E-01	1.418E+03	2.126E+06	1.428E+02
1982	1.901E+01	5.304E+03	3.564E-01	1.912E+03	2.867E+06	1.926E+02
1983	2.398E+01	6.689E+03	4.495E-01	2.412E+03	3.615E+06	2.429E+02
1984	2.898E+01	8.086E+03	5.433E-01	2.915E+03	4.370E+06	2.936E+02
1985	3.304E+01	9.218E+03	6.194E-01	3.323E+03	4.982E+06	3.347E+02
1986	3.719E+01	1.037E+04	6.971E-01	3.741E+03	5.607E+06	3.767E+02
1987	4.166E+01	1.162E+04	7.808E-01	4.190E+03	6.280E+06	4.220E+02
1988	4.669E+01	1.303E+04	8.752E-01	4.696E+03	7.039E+06	4.730E+02
1989	5.096E+01	1.422E+04	9.552E-01	5.126E+03	7.683E+06	5.162E+02
1990	5.588E+01	1.559E+04	1.047E+00	5.620E+03	8.424E+06	5.660E+02
1991	5.953E+01	1.661E+04	1.116E+00	5.988E+03	8.976E+06	6.031E+02
1992	6.352E+01	1.772E+04	1.191E+00	6.389E+03	9.577E+06	6.435E+02
1993	6.650E+01	1.855E+04	1.246E+00	6.688E+03	1.003E+07	6.736E+02
1994	6.846E+01	1.910E+04	1.283E+00	6.886E+03	1.032E+07	6.935E+02
1995	7.024E+01	1.960E+04	1.317E+00	7.065E+03	1.059E+07	7.115E+02
1996	7.196E+01	2.007E+04	1.349E+00	7.238E+03	1.085E+07	7.289E+02
1997	7.358E+01	2.053E+04	1.379E+00	7.401E+03	1.109E+07	7.454E+02
1998	7.515E+01	2.097E+04	1.409E+00	7.559E+03	1.133E+07	7.613E+02
1999	7.750E+01	2.162E+04	1.453E+00	7.795E+03	1.168E+07	7.850E+02
2000	7.992E+01	2.230E+04	1.498E+00	8.039E+03	1.205E+07	8.096E+02
2001	8.173E+01	2.280E+04	1.532E+00	8.221E+03	1.232E+07	8.280E+02
2002	8.349E+01	2.329E+04	1.565E+00	8.398E+03	1.259E+07	8.457E+02
2003	8.516E+01	2.376E+04	1.596E+00	8.566E+03	1.284E+07	8.627E+02
2004	8.697E+01	2.426E+04	1.630E+00	8.747E+03	1.311E+07	8.810E+02
2005	8.899E+01	2.483E+04	1.668E+00	8.951E+03	1.342E+07	9.015E+02
2006	9.121E+01	2.545E+04	1.710E+00	9.174E+03	1.375E+07	9.240E+02
2007	9.334E+01	2.604E+04	1.750E+00	9.389E+03	1.407E+07	9.456E+02
2008	9.536E+01	2.660E+04	1.788E+00	9.592E+03	1.438E+07	9.660E+02
2009	1.066E+02	2.973E+04	1.998E+00	1.072E+04	1.607E+07	1.080E+03
2010	1.176E+02	3.280E+04	2.204E+00	1.183E+04	1.773E+07	1.191E+03
2011	1.283E+02	3.581E+04	2.406E+00	1.291E+04	1.935E+07	1.300E+03
2012	1.389E+02	3.875E+04	2.604E+00	1.397E+04	2.094E+07	1.407E+03
2013	1.493E+02	4.164E+04	2.798E+00	1.501E+04	2.250E+07	1.512E+03
2014	1.594E+02	4.447E+04	2.988E+00	1.603E+04	2.403E+07	1.615E+03
2015	1.693E+02	4.724E+04	3.174E+00	1.703E+04	2.553E+07	1.716E+03
2016	1.791E+02	4.996E+04	3.357E+00	1.801E+04	2.700E+07	1.814E+03
2017	1.852E+02	5.166E+04	3.471E+00	1.863E+04	2.792E+07	1.876E+03
2018	1.815E+02	5.064E+04	3.403E+00	1.826E+04	2.737E+07	1.839E+03
2019	1.779E+02	4.964E+04	3.335E+00	1.790E+04	2.683E+07	1.802E+03
2020	1.744E+02	4.866E+04	3.269E+00	1.754E+04	2.629E+07	1.767E+03
2021	1.710E+02	4.769E+04	3.204E+00	1.719E+04	2.577E+07	1.732E+03
2022	1.676E+02	4.675E+04	3.141E+00	1.685E+04	2.526E+07	1.697E+03
2023	1.642E+02	4.582E+04	3.079E+00	1.652E+04	2.476E+07	1.664E+03
2024	1.610E+02	4.491E+04	3.018E+00	1.619E+04	2.427E+07	1.631E+03
2025	1.578E+02	4.403E+04	2.958E+00	1.587E+04	2.379E+07	1.599E+03

Results (Continued)

Year	NMOC			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
2026	1.547E+02	4.315E+04	2.899E+00	1.556E+04	2.332E+07	1.567E+03
2027	1.516E+02	4.230E+04	2.842E+00	1.525E+04	2.286E+07	1.536E+03
2028	1.486E+02	4.146E+04	2.786E+00	1.495E+04	2.241E+07	1.506E+03
2029	1.457E+02	4.064E+04	2.731E+00	1.465E+04	2.196E+07	1.476E+03
2030	1.428E+02	3.984E+04	2.677E+00	1.436E+04	2.153E+07	1.446E+03
2031	1.400E+02	3.905E+04	2.624E+00	1.408E+04	2.110E+07	1.418E+03
2032	1.372E+02	3.827E+04	2.572E+00	1.380E+04	2.068E+07	1.390E+03
2033	1.345E+02	3.752E+04	2.521E+00	1.353E+04	2.027E+07	1.362E+03
2034	1.318E+02	3.677E+04	2.471E+00	1.326E+04	1.987E+07	1.335E+03
2035	1.292E+02	3.604E+04	2.422E+00	1.300E+04	1.948E+07	1.309E+03
2036	1.266E+02	3.533E+04	2.374E+00	1.274E+04	1.909E+07	1.283E+03
2037	1.241E+02	3.463E+04	2.327E+00	1.249E+04	1.872E+07	1.258E+03
2038	1.217E+02	3.395E+04	2.281E+00	1.224E+04	1.835E+07	1.233E+03
2039	1.193E+02	3.327E+04	2.236E+00	1.200E+04	1.798E+07	1.208E+03
2040	1.169E+02	3.261E+04	2.191E+00	1.176E+04	1.763E+07	1.184E+03
2041	1.146E+02	3.197E+04	2.148E+00	1.153E+04	1.728E+07	1.161E+03
2042	1.123E+02	3.134E+04	2.105E+00	1.130E+04	1.693E+07	1.138E+03
2043	1.101E+02	3.072E+04	2.064E+00	1.107E+04	1.660E+07	1.115E+03
2044	1.079E+02	3.011E+04	2.023E+00	1.085E+04	1.627E+07	1.093E+03
2045	1.058E+02	2.951E+04	1.983E+00	1.064E+04	1.595E+07	1.072E+03
2046	1.037E+02	2.893E+04	1.944E+00	1.043E+04	1.563E+07	1.050E+03
2047	1.016E+02	2.835E+04	1.905E+00	1.022E+04	1.532E+07	1.030E+03
2048	9.962E+01	2.779E+04	1.867E+00	1.002E+04	1.502E+07	1.009E+03
2049	9.765E+01	2.724E+04	1.830E+00	9.822E+03	1.472E+07	9.892E+02
2050	9.571E+01	2.670E+04	1.794E+00	9.627E+03	1.443E+07	9.696E+02
2051	9.382E+01	2.617E+04	1.759E+00	9.437E+03	1.414E+07	9.504E+02
2052	9.196E+01	2.566E+04	1.724E+00	9.250E+03	1.386E+07	9.316E+02
2053	9.014E+01	2.515E+04	1.690E+00	9.067E+03	1.359E+07	9.131E+02
2054	8.836E+01	2.465E+04	1.656E+00	8.887E+03	1.332E+07	8.951E+02
2055	8.661E+01	2.416E+04	1.623E+00	8.711E+03	1.306E+07	8.773E+02
2056	8.489E+01	2.368E+04	1.591E+00	8.539E+03	1.280E+07	8.600E+02
2057	8.321E+01	2.321E+04	1.560E+00	8.370E+03	1.255E+07	8.429E+02
2058	8.156E+01	2.275E+04	1.529E+00	8.204E+03	1.230E+07	8.262E+02
2059	7.995E+01	2.230E+04	1.499E+00	8.042E+03	1.205E+07	8.099E+02
2060	7.836E+01	2.186E+04	1.469E+00	7.882E+03	1.181E+07	7.938E+02
2061	7.681E+01	2.143E+04	1.440E+00	7.726E+03	1.158E+07	7.781E+02
2062	7.529E+01	2.101E+04	1.411E+00	7.573E+03	1.135E+07	7.627E+02
2063	7.380E+01	2.059E+04	1.383E+00	7.423E+03	1.113E+07	7.476E+02
2064	7.234E+01	2.018E+04	1.356E+00	7.276E+03	1.091E+07	7.328E+02
2065	7.091E+01	1.978E+04	1.329E+00	7.132E+03	1.069E+07	7.183E+02
2066	6.950E+01	1.939E+04	1.303E+00	6.991E+03	1.048E+07	7.041E+02
2067	6.813E+01	1.901E+04	1.277E+00	6.853E+03	1.027E+07	6.901E+02
2068	6.678E+01	1.863E+04	1.252E+00	6.717E+03	1.007E+07	6.765E+02
2069	6.546E+01	1.826E+04	1.227E+00	6.584E+03	9.869E+06	6.631E+02
2070	6.416E+01	1.790E+04	1.203E+00	6.453E+03	9.673E+06	6.499E+02
2071	6.289E+01	1.754E+04	1.179E+00	6.326E+03	9.482E+06	6.371E+02
2072	6.164E+01	1.720E+04	1.155E+00	6.200E+03	9.294E+06	6.245E+02
2073	6.042E+01	1.686E+04	1.133E+00	6.078E+03	9.110E+06	6.121E+02
2074	5.923E+01	1.652E+04	1.110E+00	5.957E+03	8.930E+06	6.000E+02
2075	5.805E+01	1.620E+04	1.088E+00	5.839E+03	8.753E+06	5.881E+02
2076	5.690E+01	1.588E+04	1.067E+00	5.724E+03	8.579E+06	5.764E+02

Summary Table: LandGEM Results for Both Conventional and Bioreactor WMU's.

Year	CONVENTIONAL CELLS				BIOREACTOR CELLS				FACILITY WASTE TOTALS			
	Waste Accepted (Mg/year)	Waste-In-Place (Mg)	NMOC (Mg/year)	CH_4 (m^3/year)	Waste Accepted (Mg/year)	Waste-In-Place (Mg)	NMOC (Mg/year)	CH_4 (m^3/year)	Waste Accepted (Mg/year)	Waste-In-Place (Mg)	Total NMOC (Mg/year)	CH_4 (m^3/year)
1976	66,387	0	0.00	0	0	0	0.00	0	66,387	0	0.00	0
1977	111,892	66,387	1.48	223,697	0	0	0.00	0	111,892	66,387	1.48	223,697
1978	130,185	178,279	3.96	596,298	0	0	0.00	0	130,185	178,279	3.96	596,298
1979	155,400	308,464	6.79	1,023,161	0	0	0.00	0	155,400	308,464	6.79	1,023,161
1980	186,771	463,864	10.13	1,526,536	0	0	0.00	0	186,771	463,864	10.13	1,526,536
1981	232,381	650,635	14.10	2,125,651	0	0	0.00	0	232,381	650,635	14.10	2,125,651
1982	238,993	883,016	19.01	2,866,589	0	0	0.00	0	238,993	883,016	19.01	2,866,589
1983	245,259	1,122,009	23.98	3,615,136	0	0	0.00	0	245,259	1,122,009	23.98	3,615,136
1984	207,196	1,367,268	28.98	4,369,975	0	0	0.00	0	207,196	1,367,268	28.98	4,369,975
1985	214,814	1,574,464	33.04	4,981,610	0	0	0.00	0	214,814	1,574,464	33.04	4,981,610
1986	232,871	1,789,278	37.19	5,606,803	0	0	0.00	0	232,871	1,789,278	37.19	5,606,803
1987	262,157	2,022,149	41.66	6,280,461	0	0	0.00	0	262,157	2,022,149	41.66	6,280,461
1988	232,389	2,284,306	46.69	7,039,462	0	0	0.00	0	232,389	2,284,306	46.69	7,039,462
1989	265,136	2,516,695	50.96	7,683,128	0	0	0.00	0	265,136	2,516,695	50.96	7,683,128
1990	213,145	2,781,831	55.88	8,424,392	0	0	0.00	0	213,145	2,781,831	55.88	8,424,392
1991	231,143	2,994,976	59.53	8,975,790	0	0	0.00	0	231,143	2,994,976	59.53	8,975,790
1992	189,361	3,226,119	63.52	9,576,915	0	0	0.00	0	189,361	3,226,119	63.52	9,576,915
1993	146,855	3,415,480	66.50	10,025,349	0	0	0.00	0	146,855	3,415,480	66.50	10,025,349
1994	140,256	3,562,335	68.46	10,321,675	0	0	0.00	0	140,256	3,562,335	68.46	10,321,675
1995	139,072	3,702,591	70.24	10,589,898	0	0	0.00	0	139,072	3,702,591	70.24	10,589,898
1996	136,541	3,841,663	71.96	10,848,820	0	0	0.00	0	136,541	3,841,663	71.96	10,848,820
1997	135,307	3,978,204	73.58	11,094,086	0	0	0.00	0	135,307	3,978,204	73.58	11,094,086
1998	171,547	4,113,511	75.15	11,330,338	0	0	0.00	0	171,547	4,113,511	75.15	11,330,338
1999	177,224	4,285,058	77.50	11,684,026	0	0	0.00	0	177,224	4,285,058	77.50	11,684,026
2000	151,865	4,462,282	79.92	12,049,840	0	0	0.00	0	151,865	4,462,282	79.92	12,049,840
2001	150,845	4,614,147	81.73	12,322,960	0	0	0.00	0	150,845	4,614,147	81.73	12,322,960
2002	148,704	4,764,992	83.49	12,587,235	0	0	0.00	0	148,704	4,764,992	83.49	12,587,235
2003	156,342	4,913,696	85.16	12,839,063	0	0	0.00	0	156,342	4,913,696	85.16	12,839,063
2004	167,514	5,070,038	86.97	13,111,642	0	0	0.00	0	167,514	5,070,038	86.97	13,111,642
2005	178,273	5,237,552	88.99	13,416,468	0	0	0.00	0	178,273	5,237,552	88.99	13,416,468
2006	176,202	5,415,825	91.21	13,751,511	0	0	0.00	0	176,202	5,415,825	91.21	13,751,511
2007	173,199	5,592,027	93.34	14,072,942	0	0	0.00	0	173,199	5,592,027	93.34	14,072,942
2008	586,229	5,765,226	95.36	14,377,889	0	0	0.00	0	586,229	5,765,226	95.36	14,377,889
2009	586,229	6,351,455	106.58	16,068,540	0	0	0.00	0	586,229	6,351,455	106.58	16,068,540
2010	586,229	6,937,684	117.57	17,725,714	0	0	0.00	0	586,229	6,937,684	117.57	17,725,714
2011	586,229	7,523,912	128.34	19,350,074	0	0	0.00	0	586,229	7,523,912	128.34	19,350,074
2012	586,229	8,110,141	138.90	20,942,269	0	0	0.00	0	586,229	8,110,141	138.90	20,942,269
2013	586,229	8,696,370	149.26	22,502,937	0	0	0.00	0	586,229	8,696,370	149.26	22,502,937
2014	586,229	9,282,599	159.40	24,032,701	0	0	0.00	0	586,229	9,282,599	159.40	24,032,701
2015	586,229	9,868,828	169.35	25,532,174	0	0	0.00	0	586,229	9,868,828	169.35	25,532,174
2016	431,273	10,455,056	179.10	27,001,956	0	0	0.00	0	431,273	10,455,056	179.10	27,001,956
2017	0	10,886,329	185.19	27,920,495	0	0	0.00	0	0	10,886,329	185.19	27,920,495
2018	0	10,886,329	181.52	27,367,632	0	0	0.00	0	0	10,886,329	181.52	27,367,632
2019	0	10,886,329	177.93	26,825,716	0	0	0.00	0	0	10,886,329	177.93	26,825,716
2020	0	10,886,329	174.40	26,294,532	0	0	0.00	0	0	10,886,329	174.40	26,294,532
2021	0	10,886,329	170.95	25,773,865	0	0	0.00	0	0	10,886,329	170.95	25,773,865
2022	0	10,886,329	167.57	25,263,508	0	0	0.00	0	0	10,886,329	167.57	25,263,508
2023	0	10,886,329	164.25	24,763,257	0	0	0.00	0	0	10,886,329	164.25	24,763,257
2024	0	10,886,329	160.99	24,272,912	0	0	0.00	0	0	10,886,329	160.99	24,272,912
2025	0	10,886,329	157.81	23,792,276	0	0	0.00	0	0	10,886,329	157.81	23,792,276
2026	0	10,886,329	154.68	23,321,157	0	0	0.00	0	0	10,886,329	154.68	23,321,157
2027	0	10,886,329	151.62	22,859,368	0	0	0.00	0	0	10,886,329	151.62	22,859,368
2028	0	10,886,329	148.62	22,406,722	0	0	0.00	0	0	10,886,329	148.62	22,406,722
2029	0	10,886,329	145.67	21,963,039	0	0	0.00	0	0	10,886,329	145.67	21,963,039
2030	0	10,886,329	142.79	21,528,142	0	0	0.00	0	0	10,886,329	142.79	21,528,142
2031	0	10,886,329	139.96	21,101,856	0	0	0.00	0	0	10,886,329	139.96	21,101,856
2032	0	10,886,329	137.19	20,684,011	0	0	0.00	0	0	10,886,329	137.19	20,684,011
2033	0	10,886,329	134.47	20,274,440	0	0	0.00	0	0	10,886,329	134.47	20,274,440
2034	0	10,886,329	131.81	19,872,979	0	0	0.00	0	0	10,886,329	131.81	19,872,979
2035	0	10,886,329	129.20	19,479,468	0	0	0.00	0	0	10,886,329	129.20	19,479,468
2036	0	10,886,329	126.64	19,093,749	0	0	0.00	0	0	10,886,329	126.64	19,093,749
2037	0	10,886,329	124.14	18,715,667	0	0	0.00	0	0	10,886,329	124.14	18,715,667
2038	0	10,886,329	121.68	18,345,072	0	0	0.00	0	0	10,886,329	121.68	18,345,072
2039	0	10,886,329	119.27	17,981,815	0	0	0.00	0	0	10,886,329	119.27	17,981,815
2040	0	10,886,329	116.91	17,625,752	0	0	0.00	0	0	10,886,329	116.91	17,625,752
2041	0	10,886,329	114.59	17,276,738	0	0	0.00	0	0	10,886,329	114.59	17,276,738
2042	0	10,886,329	112.32	16,934,636	0	0	0.00	0	0	10,886,329	112.32	16,934,636
2043	0	10,886,329	110.10	16,599,308	0	0	0.00	0	0	10,886,329	110.10	16,599,308
2044	0	10,886,329	107.92	16,270,619	0	0	0.00	0	0	10,886,329	107.92	16,270,619
2045	0	10,886,329	105.78	15,948,440	0	0	0.00	0	0	10,886,329	105.78	15,948,440

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2046	0	10,886,329	103.69	15,632,639	0	0	0.00	0	0	10,886,329	103.69	15,632,639
2047	0	10,886,329	101.63	15,323,092	0	0	0.00	0	0	10,886,329	101.63	15,323,092
2048	0	10,886,329	99.62	15,019,675	0	0	0.00	0	0	10,886,329	99.62	15,019,675
2049	0	10,886,329	97.65	14,722,265	0	0	0.00	0	0	10,886,329	97.65	14,722,265
2050	0	10,886,329	95.71	14,430,745	0	0	0.00	0	0	10,886,329	95.71	14,430,745

	NMOC (Mg/yr)	CH_4 (m^3/yr)
Maximum Uncontrolled Emission =	185.19	27,920,495

Conversion Factor =	1.1023	tons/Mg
Control Efficiency =	75.0	%

	NMOC	CH_4
1st Quarter Emission (lb/quarter) =	25,167	1,897,198
2nd Quarter Emission (lb/quarter) =	25,447	1,918,279
3rd Quarter Emission (lb/quarter) =	25,726	1,939,358
4th Quarter Emission (lb/quarter) =	25,726	1,939,358
Maximum Yearly Emission =	51.03	7,694,190

Summary Table: Five Year Interval Capacity, NMOC and CH4 Generation Rates

Year	Waste-In-Place (Mg)	Total NMOC (Mg/year)	Total CH4 (m^3/year)
2008	5,765,226	95.36	14,377,889
2010	6,937,684	117.57	17,725,714
2015	9,868,828	169.35	25,532,174
2020	10,886,329	174.40	26,294,532
2025	10,886,329	157.81	23,792,276
2030	10,886,329	142.79	21,528,142
2035	10,886,329	129.20	19,479,468
2040	10,886,329	116.91	17,625,752
2045	10,886,329	105.78	15,948,440
2050	10,886,329	95.71	14,430,745